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THE AMERICAN ENGINEER

FEBRUARY, 1935

THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
PUBLISHERS

THE AMERICAN ENGINEER

Published monthly in the interest of the American People and the Engineering Profession
by the National Society of Professional Engineers

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PUBLISHING AND DISTRIBUTING OFFICES—*Scott Printing Company*
One Sherman Avenue, Jersey City, N. J.
Telephone—Webster 4-3420-1

EDITORIAL AND GENERAL OFFICES
2952 Grand Central Terminal, New York, N. Y.
Telephone—VAnderbilt 3-9152

VOLUME 1 | FEBRUARY, 1935 | NUMBER 2

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The American Engineer assumes no responsibility for statements or opinions expressed by contributors whose names identify the source of the same.

Subscription Rates

$1.00 a year, in advance, to members of the National Society of Professional Engineers and its affiliated Societies.
$2.00 a year, in advance, to non-members. Single copies, $0.25.

Entered as second-class matter January 29, 1935, at the post office at Jersey City, New Jersey, under the act of March 3, 1879.

CONSTITUTION
of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Preamble—Recognizing that service to Society, to State, and to Profession is the premise upon which individual opportunity must be builded, the National Society of Professional Engineers does herewith dedicate itself to the promotion and protection of the Profession of engineering as a social and economic influence vital to the affairs of men and of these United States.

Name—The name of this organization shall be the National Society of Professional Engineers.

Objects—The objects of this Society are to represent the body of Professional Engineers in the United States with a view to promoting the public interest as affected by the service of the Engineer, and safeguarding and strengthening the professional body for this purpose; to advance the professional and economic interests of the Engineer through legislation, care of public relations, maintenance of the integrity of professional practice, and mutual aid and support; to unite, coordinate, and assist the activities of the State Societies of Professional Engineers and their local chapters.

Headquarters — The main offices of this Society shall be located at Washington, D. C., or such other place as may be designated by the Board of Directors.

Membership — The membership shall be limited to Professional Engineers. Professional Engineers shall be defined (a) in States having registration laws, as Engineers who are legally registered or licensed; (b) in States not yet having registration laws, as Engineers who are legally registered in another State, or certified by the National Council of State Boards of Engineering Examiners, or up to January 1st, 1937, by the Board of Directors of a constituent or cooperating organization as having equivalent qualifications. After January 1st, 1937, members who have secured admission through certification by a Board of Directors of a constituent or cooperating organization shall be dropped from membership unless they shall have otherwise qualified as herein set forth.

Member State Societies — Only State Societies constituted primarily or principally of Professional Engineers shall be eligible for affiliation as Member State Societies. Only the Professional Engineer members of a Member State Society shall have a voice in the affairs of the National Society and be included in the number determining the voting power of its representative on the Board of Directors. A minimum of ten Professional Engineers shall be required for the formation and chartering of a Member State Society. One organization in each state, approved by the Board of Directors of the National Society as qualifying under this constitution may become a Member State Society, upon written acceptance of this constitution.

Reciprocal Relationship — In any state having a Member State Society, every Professional Engineer who is a member of such Member State Society will automatically become a member of the National Society, and no resident can obtain or retain membership in the National Society except through membership in such Member State Society.

Officers—The officers of the National Society shall be a President, two (2) Vice-Presidents, a Treasurer, and a salaried Executive Secretary, who shall each perform the duties usually pertaining to the respective offices.

Board of Directors—The Board of Directors shall consist of the officers of the National Society, and of one representative from each Member State Society who shall be named annually by the said State Society. Each member of the Board of Directors shall have one vote except that each State Society representative shall have one vote for each 1,000 (or fraction thereof) legally registered professional engineer members of the State Society. The Board of Directors shall determine questions of policy and shall meet on call of the President of the National Society.

Nominations—Nominations for officers shall be made by a committee of five, who shall be appointed by the Board of Directors. Additional nominations may be made by petition of fifty members.

Elections—Elections of officers (except the Executive Secretary) shall be made annually by plurality vote on individual letter ballots sent to all members of the National Society. The Executive Secretary shall be appointed by the Board of Directors and shall hold office at its pleasure.

Committees—The Committees of the National Society shall be, Executive, Legislative, Public Relations, Professional Relations, Publication, Membership, and such other committees as may be desirable. All committees shall be appointed by the President and shall perform such duties as may be assigned by him.

Conventions—A convention shall be held annually at such time and place as may be selected by the Executive Committee.

Dues—The dues for membership in the National Society for each professional engineer member of a Member State Society shall be four dollars per annum, one dollar of which shall be for subscription to the magazine to be published by the National Society and three dollars of which shall be for the activities of the National Society. These four dollars shall be collected by the County Chapters or State Societies along with the dues of the County Chapter and of the State Society. For members residing in States where Member State Societies have not yet been established, the dues shall be ten dollars per annum paid direct to the National Society, of which sum six dollars shall be set aside in a special "Extension Fund" to be used by the National Society for the purpose of promoting legislation and organizing State Societies in additional states.

State Autonomy—In all matters of state or local concern, the Member State Societies shall retain full autonomy, but may call upon the National Society for advice, counsel and assistance. The National Society may recommend state legislation and procedure in the interests of uniformity and efficiency, but action upon these recommendations shall be determined by the Member State Society.

Cooperation—The National Society shall cooperate with all National agencies having allied interests and may give its assistance and support to such agencies. The activities of the National Society shall be restricted to the professional interests of the Engineer, leaving all technical activities to the established technical societies. It shall be the aim of the National Society to promote unification of organizations and to discourage duplication of functions.

Reserve Funds—All divisions of the organization (national, state and local chapter) shall operate with maximum economy, and shall endeavor to build up reserve funds to be used only at critical periods for mutual assistance in carrying out the essential objectives of the organization.

Amendments—Amendments may be initiated by the Board of Directors or by any member State Society. All amendments to become effective must receive a favorable vote of two-thirds of the votes cast by letter ballot.

PUBLIC WORKS PORTFOLIO

ESTABLISHMENT OF A DEPARTMENT URGENT

Employment Requires Engineering Planning and Prosecution

THE nation awaits with anxiety the announcement of the program whereby the $4,800,000 recently recommended to Congress is to be expended. No greater responsibility could be placed upon the shoulders of a peace time director, than that which will be assumed by the person entrusted with the distribution of this money.

At first glance $5,000,000 is a staggering figure, but when one realizes that the great war was prosecuted at the rate of over $50,000,000 a day or $20,000,000,000 a year, the magnitude of the sum appropriated, to protect America against hunger, anguish, social upheavals and probable chaos, is a comparatively small outlay, with which to wage a war to save a nation from its own folly. If only such outlay could assure salvation. But can it? The answer belongs to the none too distant future.

In the opinion of many, including most Engineers, the amount recommended, $4,800,000, and the time in which to spend it, two years, are far too small to accomplish the objective of eliminating, or even greatly reducing unemployment, unless an annual renewal is assured for several years subsequent thereto, and unless the total amount is actually expended on public works. At the present writing there exists no national agency which, in the consensus of engineering opinion, is competent to direct a great program of public works.

The wisdom and propriety of governmental control, national, state or local, over the ordinary commerce, manufacturing and private enterprise of a people may be open to question, but the planning and executing of public works are undeniably functions of governmental agencies. The nation has established cabinet posts, boards and commissions to regulate business, but has ignored that most important activity, public works. With the appropriation of another huge sum to provide employment, there again arises the problem of selecting or creating an agency to direct the expenditures. What will the agency be, and how will it be selected?

To Engineers it has long been obvious that the creation of a new cabinet post, a Department of Public Works, directed by a Secretary who is a Professional Engineer, is the only means of preventing waste, duplication and confusion. War, foreign affairs, postal service, currency and internal business are phases of national existence which are deemed so vital as to warrant departments of the Government for their control. Is not the construction and maintenance of public works an indispensable phase of modern society? Eliminate, or even permit depreciation in the matter of public works and justice, health, education, legislation, transportation, communication, business, development of natural resources—yes, even communal existence itself—are jeopardized.

The creation of a cabinet office entrusted with the task of co-ordinating the work of existing agencies, and of bringing, so far as is practicable, all peace time public improvements under its control, should receive the immediate attention of Engineers. Plans for a nation-wide endeavor in pursuit of this objective are already in the making and the National Society of Professional Engineers will be urged to sponsor the movement.

Time moves on, regardless of human will, and Society must realize that in future, protection against man made internal economic depressions will be as vital to the welfare of the nation as adequate defense against alien arms. Preparation in time of plenty is as logical as preparation in time of peace. Despite our prayers, and until nature changes, national conflicts will probably recur as long as the human race endures, and so will poverty and misfortune; but while there may be slight hope for prolonged international peace there is indeed justification for visualizing plenty for the great mass of willing workers of a nation so bounteously endowed as these United States. Three elements must be considered; first and foremost, the will of Divine Providence, that the elements may remain constant; second, a planned society that will minimize the results of chance; and thirdly, State control of individual power and wealth to the end that selfishness and greed may not satiate a few whilst starving millions.

At the moment, the question of gold holds the center of the monetary stage of American existence. However, there is little doubt that this will pass, as has most of the 18th and 19th century economic philosophy. After all, gold as money, is but a medium and the rarer it becomes the sooner it will pass to the museum of outworn commodities. The need for a currency will remain, and whilst future currency may be a variable in the mathematical sense, there will be found a way of storing sufficient reserve to transform nature plus labor into a wealth against which new currency can be created, distributed, and again stored in such proportions as to be prepared for providing national or governmental employment for all who cannot secure the same from other sources.

To prosecute the present program of public works, in many if not most cases hurriedly and poorly conceived; and to plan, economically and scientifically for the future needs of a great nation and its millions of inhabitants, the creation of the cabinet post of Secretary of Public Works should be effected with all possible speed.

The Engineer, who must one day direct the planning, as well as the prosecution of all public work should, in behalf, not alone of his profession, but of the nation he accepts, place the matter forcefully before the people

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ENGINEERS AND THE FUTURE

Political Thinking Indispensible Concern of the Profession

By GERALD W. KNIGHT

THE writer, recently had a number of engineers ask "What is being done about more Federal projects—more jobs?" and the oft repeated query causes one to reflect upon what is ahead.

H. G. Wells says in his appraisal of the "New Deal" measures and plans, "The world is unprepared for them," that there are no educational and cultural substratum, no adequate blue prints, no civil service class with the necessary morale for the carrying out of the vast proposition.

He adds, however, "But everything must be premature at first, and the role of every great leadership is primarily preparatory. If the necessary means are not ready, it is high time that they were ready."

"In the past it seemed to Europeans that, locked in their Constitution and their tradition of business individualism, the Americans were totally destitute of political imagination, that their politicians were bound to be party politicians forever and their economic life a scuffle to make money. Their mighty stirrings now, their imminent awakening, under the stress of economic failure and strange opportunity, to the demands of the great before our race, are—because of their visibility, audibility, and material importance — the outstanding event of the present time."

I am struck with two or three of Wells' figures of speech: "Their mighty stirrings now—," "their imminent awakening—," "their strange opportunity to the demands of the great before our race—." In them I see the Engineer. Will he take advantage of this,—his strange opportunity?

The time has come for the Engineer to view the "New Deal" and the Recovery Program from a new angle. Heretofore they have been discussed, condemned or commended on their merits as emergency relief measures. But from now on we must look ahead and, in the light of our experience, see what the portend is for the future, especially to us as a Profession.

The N. I. R. A. has now, by statute, only a short time to run (June 1st next). It is, therefore, quite idle to prolong the controversies which have arisen out of the creation and the Administration of the present organizations, which have taken such a hold on our economic life. Rather, we should be studying earnestly and with entire freedom from either professional or political bias, our experience with the emergency measures, so that, at the conclusion of the emergency, which we pray will not be far off, we can help to write the platforms of the permanent deal and preserve our identity in it. We must therefore consolidate our own opinions and convictions now and before the next Congress convenes, and I cannot emphasize this too strongly.

The Engineers devised a code, more or less half-heartedly, and with no real conviction as to its usefulness, which no one really believes will ever become effective, at least, in its present form. It was devised as an expediency measure, along with a host of similar makeshifts. It was not devised to survive the emergency and in the light of our future participation in the great changes bound to come and remain with us, must be radically revised, or completely eliminated.

Just as there can be no doubt that a continuing policy of restricted production or arrested expansion will end personal initiative, kill technical progress and destroy the one essential motive of the existing economic order, so also is it obvious that in the permanent set-up which follows the thrust of the new deal, the engineers will play no very important part, except as hireling, unless they step in and take a hand. This can only be accomplished through organization.

Col. Frank Knox, publisher of the Chicago Daily News, recently said: "The communal society, the cooperative state and a regimented agriculture and industry, are not the brain children of our current brain trust in Washington. The world has known them, and known them intimately, for centuries. All through the Middle Ages the enforced regimentation under the cooperative system blighted human progress. In those days a man born the son of a blacksmith, a weaver, or a hostler, remained in that category till the end of his days. The door to progress for him was closed and locked. It was only after the emergence of a free competitive system of political economy, with its encouragement and reward for individual enterprise, that the world was elevated from the semi-barbarism of the Middle Ages into the broad daylight of modern civilization.

"More human progress has been achieved in the scant century or two of individualism than in the thousands of years, which preceded its advent. It has been under the individualistic philosophy that men have become free and have erected free governments to rule over them."

In Italy, Germany and Russia they have turned the control of their business over to their Governments. In order to do this, the peoples of those countries had to surrender their personal liberty. Their rights as individuals have been destroyed and yet, whether in communistic Russia, totalitarian Germany, or fascist Italy, the conditions of living for the average citizen are so incredibly harsh that if similar conditions were imposed upon Americans they would produce, over night, an armed revolt.

With one out of every eight persons in the United States subsisting to some degree upon funds dispensed by the Federal Government, it is highly important to emphasize that governments do not exist to support people, but that it is the duty of citizens in a free Re-

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ENGINEERS AND ETHICS

JUSTICE DEMANDS SELF PRESERVATION

Services Must be Rewarded as Well as Rendered

By L. S. LE TELLIER

SOME years ago, a committee, of which the writer was Chairman, prepared for the consideration of the South Carolina Society of Engineers a code of ethics. The report presented was developed from the meaning of the word "code" as was then generally accepted, namely, a set of principles which, in the opinion of the individuals or organizations subscribing thereto, should govern Engineers in their professional relations. It was a high-minded and pious affirmation of an ethical standard in keeping with the best traditions of the profession. It dealt in a spirit of conscious virtue with an ideal of honesty, fair dealing, and unselfish service. Nothing, it is believed, was overlooked in cataloguing and affirming the full duty owed to society. Looking back on its work, the committee is conscious of having done a thorough job; it can now think of no new duty, or obligation, or ethical principle to impose on Engineers. The committee continues to recommend the adoption of its code.

But the minds of the members of the committee are becoming more and more sensible of other aspects of Professional relations. The code they prepared bristled with harsh categorical imperatives all of which were deliberately aimed at Engineers. It was a hopelessly one-sided document as full of "thou-shalt-nots" as the Ten Commendments. There was no word of the duty that society owed to them nor any workable suggestion as to how they might inspire a decent regard for themselves as human beings with hopes and aspirations and material wants no less acute than those of other men. It is now suggested that reciprocality be used as a basis for an addendum to the code, and that temporarily as much thought be given to survival as to service. There is no need right now to specify the crass details of the turning of the work; that will have to wait until the mood and state of mind can be achieved to escape from the thraldom of a tradition that lays heavily upon the engineer. The tradition is that it is crude and unprofessional and sinful to reinforce their feeble demands for recognition and reward with force or threats of force. As long as they are willing to turn the other cheek there is always going to be somebody to strike it.

This committee feels a shrinking sense of the importance of further elaboration or discussion of the duty of Engineers to the public, to the present "day and generation," to posterity, or any of those other vague entities that match their solicitude for them with complete insensibility of the no less pressing obligations which they in turn are owed. The members are ready to affirm and codify those frankly personal and selfish ends which they would like to achieve through their Professional work and to outline a policy for realizing those aims. They would abate nothing of the traditional social-mindedness of the Engineer, nor of his healthy and wholesome ideal of sacrificing everything for the good of the job; but would affirm that he needs and wants greater compensation, security of tenure, a place in the economic system less subject to the vagaries of business cycles, less direction and supervision from "stuffed shirts," less of this business of being herded and driven like so much cattle into the technical execution of fantastic schemes of social progress in which all important decisions and all real authority is vested in nit-wits or visionaries thrown up by political currents, greater professional consciousness and solidarity, and greater authority and influence in controlling and manipulating the new order (or disorder) that is emerging under the auspices of the new social philosophy. All of these objectives may be avowed and pursued with a clear Professional conscience, and nothing of value to the general good, or to the Engineers themselves is to be gained by covering their real desires with a mantle of scarificial social-mindedness. Nobody believes, anyway, that the rather pathetic figure that the Engineer cuts in the socmic scheme is due to his altruism; it is attributed rather to his dumbness. The only authentic altruism is that possessed by the social philosophers who set out to regenerate civilization at not less than $10,000 per annum. Much of their own alleged insensibility to material rewards is highly recommended to them by those estimable Engineers in the top brackets of compensation.

Under the auspices of the New Deal the word "code" has acquired a technical significance. Despite all sentimental nonsense to the contrary, a code may now be defined as a statement of the rules, regulations, and practices by which parties to the code expect to extract a maximum of benefit from the New Deal. This purpose may be wholly altruistic in its import if not in its bold statement. For all that is known, it may be social-mindedness by indirection, depending upon the thesis that a sound and healthy whole cannot be integrated with unsound and unhealthy parts, that national justice cannot be bought at the expense of injustice to any of the constituent groups of the national cosmos. Be that as it may, it appears that every group that has any objectives is giving vocal expression to them. Lacking capacity to seize the opportunity, and the showmanship to dramatize its rights and aspirations, no group may expect volunteers to be so impelled by a sense of social justice that they will cross the Macedonian borders and provide it with a voice to speak its claims. If the Engineers are going to promulgate a Magna Charta, they must provide it themselves. If there is any group, other than Engineers, which is afflicted with reticence about staking its claim, or ethical inhibitions about how it will hold the boundaries, they have not been heard from.

The writer believes that the Engineers will have no difficulty in defining what it is that they want and can

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ENGINEERS AND UNEMPLOYMENT

Are Colleges Contributing Too Many Engineering Graduates?

By D. B. STEINMAN

THE number of men in a profession, compared with the demand for their services, constitutes the key to their social-economic status.

In 1890, there were only about 2,000 living engineering graduates in the United States. In 1930, there were about 158,000 (ages 25 to 64), an increase of 7800 per cent in forty years.

In 1890, there were only 1,195 students enrolled in the engineering schools of this country. In 1931, there were 73,386 engineering students, an increase of over 6000 per cent.

In 1890, there were only 189 students in the graduating classes of all the engineering schools in the country. In 1931, there were 11,595 such graduating students, an increase of 6,000 per cent.

In 1890, there were only 445 students in all the engineering schools in the country. In 1931, there were 27,370 engineering students admitted, an increase of 6,000 per cent.

During the same period, while engineering student enrollment was increasing 6000 per cent and the total number of college-trained engineers was increasing 7800 per cent, the population of the United States increased only 95 per cent. The number of living college-trained Engineers (ages 25 to 64) per million of population increased in forty years from 32 to 1,280, an increase of 3900 per cent.

The total number of Engineers in the United States (ages 25 to 64) including non-graduates was 32,000 in 1890, and 195,000 in 1930, an increase of 510 per cent in forty years, with the total population increasing only 95 per cent in the same period.

During the thirty years from 1900 to 1930, using the U. S. census figures for the various professions (ages 25 to 64) per million of total population, the number of physicians decreased from 1,420 to 1,050, a *decrease* of 26 per cent; the number of lawyers was reduced from 1,280 to 1,120, a *decrease* of 13 per cent; the number of architects remained *constant* at 300; and, during the same period, the number of Engineers per million of population *increased* from 420 to 1,590, *an increase of 278 per cent!* A comparative graph for these four professions emphasizes the control or reduction of ratios to population for the other three professions, while the ratio of Engineers is steeply ascending.

In 1904, following the ideals of Dr. Osler and the leadership of Dr. Flexner, the medical profession embarked on a program of restricting its numbers while raising its qualification standards. The philosophy, methods and results may well be studied by the Engineering Profession.

In 1906 there were 162 approved medical colleges in the United States. In 1930 there were only 76; more than half had been eliminated by non-approval.

In 1905, there were 26,147 medical students in the United States. By 1920, this number had been progressively reduced to 13,798, approximately one-half.

In 1905, the medical schools turned out 5,606 graduates. By 1919, the number of graduates had been reduced to 2,656, a reduction of more than one-half.

In 1904, 4,700 physicians were added to the Profession. By 1918, the number of new admissions annually to the medical profession was reduced to 2,975.

The requirements for admission into the medical profession have been progressively raised. It is now practically impossible to enter the medical profession without graduation from an approved medical school, and it is, as a rule, impossible to enter an approved medical school without first completing two or more years in a college of liberal arts. In forty-three of the States, the pre-medical college study is required by law. In thirty-six of the States, none but graduates of approved medical schools can be admitted into the profession. Of those admitted to practice in this country in 1922, 81 per cent were graduates of approved medical schools; by 1933, this ratio had risen to 94 per cent.

The president of one of the medical schools recently stated: "It is important to recognize that the opportunity to study medicine is definitely limited by the medical schools in this and other lands. In our country each year between 6,200 and 6,300 medical freshmen are chosen from a field of approximately 14,000 applicants. Furthermore, foreign study is restricted in that almost impassable barriers have been established in many countries abroad, and by legislation in most of our States. Any young man wishing to study abroad must first get permission from the State in which he wishes to practice. Most States are refusing to accept the foreign diploma."

Medical schools are limiting their enrollments in accordance with the facilities available, in order to maintain their standing with various supervising bodies.

In 1933, in the medical schools of the U. S. and Canada, there were 29,940 applications for admission, representing 12,128 applicants, and only 6,457 were accepted and enrolled for the Freshman year.

The New York Herald-Tribune recently stated: "It is known that the medical profession is making every effort to discourage the tremendous number applying for a medical education. Aspirants far exceed the capacity of the schools and the profession is making an organized attempt to make pre-medical students take cognizance of this situation. Leading medical educators feel that this attempt will not injure the high standing of the profession by limiting the field from which physicians are chosen, because only the weaker students, those who have no possible chance of admission to the medical schools, are being discouraged."

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THE CHANGING UNIVERSE

Science Being Re-established As Result of Modified Concepts

By LEOPOLD LEITNER

KNOWLEDGE of the physical universe, formulated in a rational system is termed natural science. To the pragmatist, and today he is much in evidence, such science is not something prepared for man by nature but is rather the creation of the human mind. With such premises, it is entirely reasonable to expect that as man's concept of nature expands there needs must arise occasions wherein experiment refutes any prevailing system or school of thought. On such occasions it becomes necessary to revise or even to destroy fundamental concepts and build anew the premises of science.

If one may be pardoned for employing a figurative expression in such a discourse, it may be said that "history repeats itself." Man's present attitude toward science may well be compared to that in vogue when Copernicus announced his helio-centric theory at the beginning of the 16th century. Now, as was then the case, a reorientation of the human attitude is taking place. While relatively the Copernican theory aroused greater public interest, because it apparently conflicted with commonplace experiences, the present change of concepts is more subtle, more fundamental, and of wider scope.

It is not so much the layman who is affected by the new trend; it is the practical and theoretical scientist who is suddenly reminded that laws, which had the authority of a Newton, which sometimes even seemed to have the strength of self-evidence, are only approximations and consequently not absolutely true. Another instance of incorrect deduction is intimated by virtue of the fact that while the law relevant to the addition of vectors seems so apparent as to be almost axiomatic, there is contradiction evidenced by the statement that one light beam will not pass another at twice, but only at the absolute, velocity of light. In other words, while light is assumed as having a certain constant and finite value it also is assumed to possess the property of infinity and infinity plus anything is still infinity. The question seems to be not only: are our senses reliable? but, is our logic dependable.

This illustration shows the latest endeavor to make "objective" science as little subjective as possible. It also suggests that a large-scale outline of the history of science runs parallel with the human attitude towards natural phenomena and that epochal changes in science are at the same time changes of human attitude. Human attitude may also be called hypothesis on a large scale, because it is tacitly, sometimes unconsciously, assumed that we are on the right track. In the history of science three such "hypothesis" are distinguishable.

1st, that which relies on human senses in the determination of the primary elements of nature;

2nd, that which assumes absolute space and time;

3rd, that which believes that the universe cannot be comprehended in physical terms but can be expressed only mathematically.

The above so-called hypothesis are, of course, not of an exclusive character. Moreover, it is believed that they represent only roughly the general historical trend of natural science, while contemporary abstract philosophy may have, and undoubtedly often did, run a different course.

It is to be expected that early natural science should have relied on human senses. Man is habituated by nature in that direction, since it is through his senses that he makes contact with the rest of the world. To place one's self in the frame of mind of early scientists, one has only to look into the working of the naive mind of to-day. The answer of the village philosopher, when asked which was more useful, the sun or the moon, seems to be to the point. His answer was: "The moon, because it shines at night, whereas the sun shines in the daytime when it is light anyway." We find in fact a parallel to this modern naive mind, in what was unquestionably considered scientific in its day, in that passage of the Bible wherein we read that God created light on the first day, and a number of days later the sun, the moon and the stars. It seems that light was considered an "element" of nature quite apart from its source.

The sense of sight, however, did not generally play so important a part in the formulation of first principles as did that complex of senses which is called touch. The touching of an object and the feeling of its solidity leaves one more satisfied with its reality than the mere sight of it. No wonder then, that cosmologies founded on the sense of touch received at the hands of noted philosophers a greater popularity. Reference is made here to the Greek philosophers who established the physical theory of the universe, and above all, to Aristotle. Aristotle, in determining the elements of nature, took as his basis the human sensations of heat and cold, of dryness and wetness. Searching nature for elements which caused these sensations, he found fire, water, air and earth; these he considered the primary elements. Lofty as is Aristotle's philosophy in other respects, the foundation of his physics seems indeed naive.

By basing science on a wrong hypothesis one hinders its development. Aristotle, with his "elements," gave a scientific foundation to that human attitude which most inquisitive minds would be prone to take anyway; thus he put science on the wrong track.

It was only in the age of alchemy that science rid itself from this wrong hypothesis. While the alche-

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PUBLICITY FOR LICENSE LAWS

CAMPAIGN IN OREGON OUTLINED

By ARCHY B. CARTER

THE State Board of Engineering Examiners, after having administered the Engineers' Registration Law of Oregon for some fourteen years, has come to the conclusion that the difficulties encountered in enforcing this law have been due, to a very appreciable degree, to lack of familiarity on the part of the public with the provisions of the said law and with the benefits that would accrue to the public through its general enforcement. As a means of familiarizing the public with the purposes of this law and of protecting the public from the practices of unqualified, incompetent and unscrupulous persons styling themselves "engineers," the Oregon Board is carrying on an educational campaign through the medium of various newspapers throughout the state.

When the proposal of such a campaign first came before the Board for discussion, two possible objections presented themselves. First, was the carrying on of such a campaign through the public press, a legal proceeding, per se, under provisions of the state Engineers' Registration Law; second, assuming that such a campaign were in itself legal, could the necessary expense incident thereto be legally met from funds in the State Treasury available for the use of the Board in carrying on its legitimate activities. In order to be assured on these points, the Board sought and obtained rulings from Mr. I. H. Van Winkle, Attorney General of the State of Oregon, covering both. Concerning the first of these points, the Attorney General ruled as follows:

" . . . I find upon examination that the notice mentioned is one warning the Public that sundry persons who are not authorized to practice engineering, are holding themselves out as mining engineers and are making engineering reports on mining properties. Said notice further calls attention to the fact that any person assuming to make such reports must be licensed as an engineer, and giving information as to the available list of such licensed practitioners.

The Oregon law contains a similar provision.

Sec. 68—1316, Oregon Code 1930.

It is also made a part of the duty of the Board of Engineering Examiners to enforce the provisions of this law by and with the aid of the several prosecuting attorneys of the state.

Sec. 68—1317, subdivision 8, Oregon Code 1930.

I therefore answer your question in the affirmative.

Very truly yours,

(Signed) I. H. Van Winkle

Attorney General"

The foregoing opinion was rendered in response to an inquiry from the Oregon Board as to its right to publish certain types of notices, copies of which were submitted with the inquiry.

Sec. 68—1316, Oregon Code 1930, above referred to is as follows:

§ 68—1316. *Unlawful Acts; Penalty.*

Any person who, not being legally authorized to practice professional engineering within this state according to the provisions of this act, and so registered according to law, shall practice, or attempt or advertise to practice, or hold himself out as authorized to practice professional engineering, or shall use in connection with his name or otherwise assume, use or advertise any title or designation tending to convey the impression that he is a professional engineer, and any person who shall buy, sell or fraudulently obtain any certificate of registration or who shall aid or abet such buying, selling, or fraudulent obtaining, or who shall practice, or attempt or advertise to practice or hold himself out as authorized to practice professional engineering under cover of any certificate obtained or issued fraudulently or unlawfully or under fraudulent representations or mistake of fact in a material regard, and any person who shall practice, or attempt or advertise to practice, or hold himself out as authorized to practice professional engineering under a false or assumed name or who shall falsely impersonate any professional engineer or former professional engineer of a like or different name, shall be guilty of a misdemeanor, and upon conviction shall be subject to a fine of not less than $25 nor more than $500, or imprisonment in the county jail not to exceed six months. [L. 1919, ch. 381, § 15, p. 673; O. L. § 8331.]

Sec. 68—1317, subdivision 8, Oregon Code 1930 above referred to is as follows:

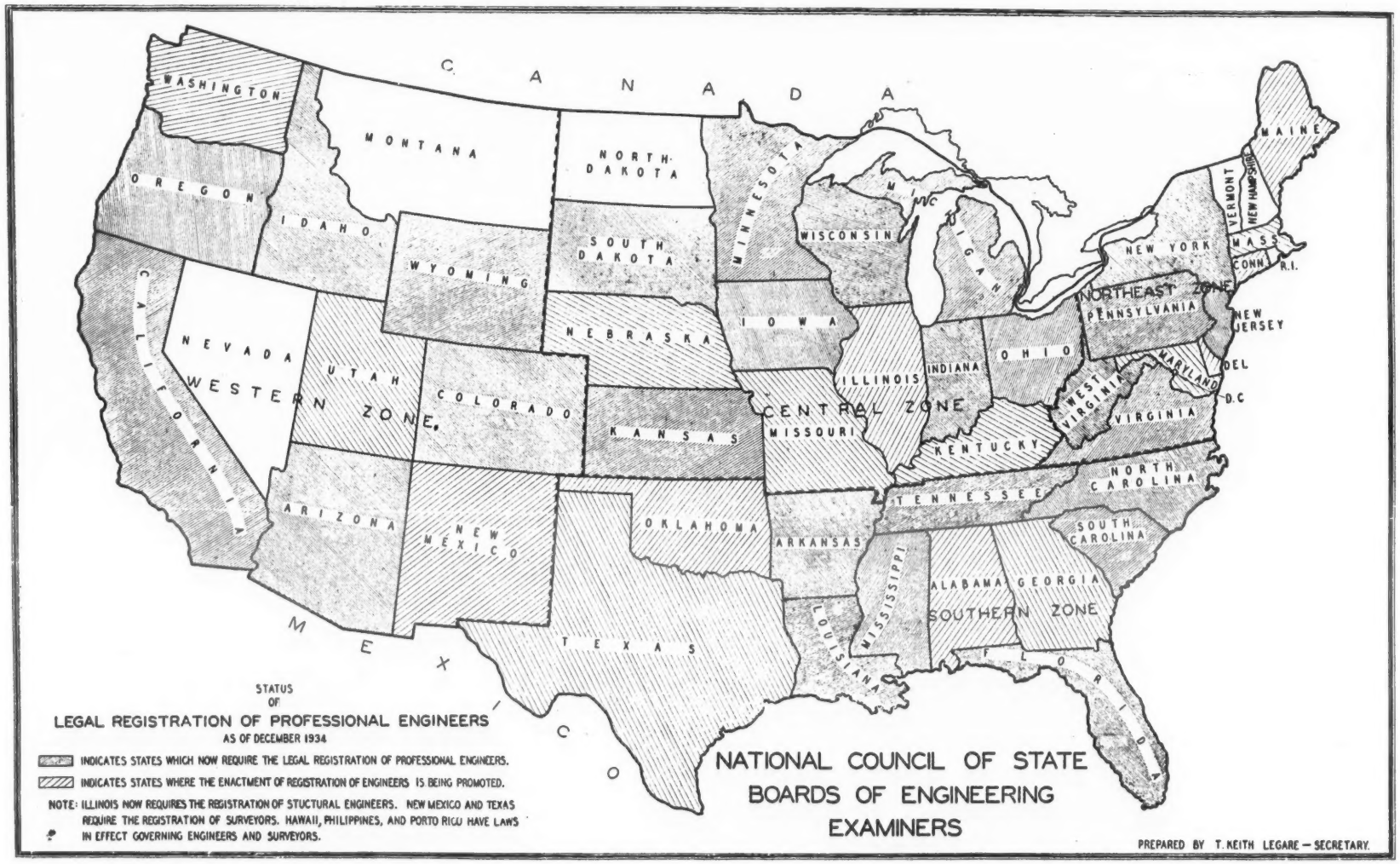
It shall be the duty of the state board of engineering examiners to aid the several prosecuting attorneys or district attorneys of the state of Oregon in the enforcement of this act. The state board of engineering examiners shall have the right to expend such amounts of money as they may deem proper from the special fund in the state treasury known as the "engineers' registration fund," in the investigation of violations of this act, and the gathering of evidence of the same. The state board of engineering examiners may direct the secretary of said board to file complaints against persons, firms or corporations believed by the board to be violating any provisions of this act. [L. 1919, ch. 381, § 16; O. L. § 8332; L. 1921, ch. 112, § 5; L. 1915, ch. 315, § 1, p. 613.]

Covering the expenditure of public funds for the purpose of meeting the expense of this campaign, the ruling of the Attorney General was as follows:

" . . . I have to advise thereon in accordance with my opinion to you under date of November 8, 1933, that such expenditure is a legitimate expenditure of

(*Continued on page* 21)

Registration in the United States
Map prepared by National Council of State Boards of Engineering Examiners



Suggests Need and Opportunity for National Society of Professional Engineers

ITEMS OF GENERAL INTEREST

NEWS, REPORTS, COMMENTS, NATIONAL SOCIETY ACTIVITIES

Lack of space has made necessary the elimination of much interesting news. It is hoped that increased advertising will shortly permit of an expansion of the size of the American Engineer. Persons interested in advertising are requested to contact the publisher.

Correspondents and readers are invited to submit for publication items of interest to the professional Engineer of the country. Such material must reach the Editor prior to the twentieth day of each month.

GOVERNMENT PRACTICES

Unprofessional Methods in Vogue

John W. Pickworth, Chairman of the Special Committee appointed by the New York County Chapter of the New York State Society of Professional Engineers, for the purpose of reporting on Work and Economic Activities of the Federal Government, has presented the following commentary on certain methods now in vogue in Washington:

Engineers have been aroused by examples of wrong practice on the part of the Federal Government in dealings with the Engineering profession. On projects where the Government is client, the Administration at Washington seems ignorant of certain fundamental and commonly recognized principles of professional ethics. Over the signatures of consultants and without their approval or in spite of their disapproval, Federal departments have made radical changes in designs.

It has happened in cases of late that having custody of tracings, a department has made changes of sizes and of layout, either by using an addendum to the specifications giving substitution lists, or by actually altering the inked tracings. This has been done over the signature of the designer without his knowledge or subsequent consent.

In another case, for the avowed purpose of getting secondary bids nearer to, but not within, an insufficient appropriation, a department made radical changes in a design. The original tracings bearing the signatures of Architect and Engineer were altered. Protest was ineffectual and the revised design which meets with the disapproval of the consultants, but which still bears their signatures, was contracted for and erected.

The writer has before him a long list of substitute beam sizes issued from Washington on one particular job. Substitute sizes are less in strength than the original by as much as 12 per cent. There is no excuse for some of the selections except the obvious deliberate saving in cost at the sacrifice of strength. The designer, a man of prominence, states that the matter has been completely out of his control since the tracings went to Washington.

If a private client attempted such a procedure, the engineer would have immediate recourse by merely calling the matter to the attention of the local building department.

There is no argument within the profession but that the original designer should be retained to check and finally approve details. Everyone of experience knows that no project of any magnitude can be carried to completion without changes from the estimate or contract

(*Continued on page* 25)

AN APPEAL

In Behalf of Private Practitioners

T. Keith Legare, Executive Secretary of the National Society, has communicated with the several State Societies urging them to address themselves to their respective Senators and Congressmen in behalf of Engineers and Architects engaged in private practice.

A copy of the letter addressed to Senator Smith of South Carolina together with one to Secretary Keast of Pennsylvania, is appended herewith:

"February 4, 1935.

Hon. E. D. Smith,
U. S. Senator (S. C.),
Washington, D. C.
My Dear Sir:—

The President's recent proposal of the expenditure of an additional four billion dollars for public works is a matter of deep interest to every citizen of the United States. It represents an extraordinary effort to create employment for millions. It is of most vital concern to the Engineering and Architectural professions.

There is practically no private construction activity. Long established professional offices are going to pieces. To allow this is nothing less than calamity.

The policy of assigning one large staff of Engineers and Architects to this work is contrary to the purpose and intent of the proposal. This appropriation is being made with the stated intention of increasing the earning powers of the greatest number of workers possible.

Fairer distribution can be obtained by having this work designed in the established private professional offices than by a Government force concentrated in one locality.

Private practitioners, familiar with local requirements and who give individual attention to projects within their own territory, are in the best position to design efficient, appropriate and economical structures.

We therefore earnestly request you to give these conditions your serious consideration, and to urge the Administration to assign all construction design to the established private professional organizations.

Respectfully yours,
T. KEITH LEGARE,

"Mr. S. A. Keast,
Secretary, Pennsylvania Society of Professional Engineers, 4845 North 18th Street, Philadelphia, Pa.
Dear Mr. Keast:

You are requested to send a letter similar to the enclosed copy to the members of Congress from your State and to any other Federal official who may be connected with the Administration of the work proposed. Your co-operation in promoting the interest of the engineering profession in this way will be greatly appreciated. Cordially yours,

T. KEITH LEGARE,
Executive Secretary."

PROTECTING THE NAME

Press and Government to Aid

The following interesting communication speak for themselves and suggest the need for a long campaign of education:

"January 7, 1935.

Mr. D. B. Steinman, President,
National Soc. of Prof. Engineers,
117 Liberty Street,
New York, N. Y.
Dear Mr. Steinman:

The service of The Associated Press comes from 1300 newspapers in communities which doubtless have known the drivers of locomotives as "engineers" for many years. In time we may be able to change the practice, in harmony with your request, but it will not be easy. All I can say at this time is that we will put out a notice in what we call our "news log" requesting that operators of locomotives be referred to as "enginemen" or "engine drivers" instead of "engineers."

During the period necessary to bring about the result you requested I trust we will not receive complaints regarding your individual disappointments.

Sincerely yours,
(signed) JACKSON S. ELLIOTT,
Assistant General Manager."

"December 27, 1934.

Mr. D. B. Steinman, President,
National Soc'y of Prof. Engineers,
117 Liberty Street,
New York, N. Y.
Dear Mr. Steinman:

Replying to your letter of December 22nd, I am glad to be able to tell you, as I have told Professor Dodds and Mr. Pfund, that we are making a revision of our occupational classification set-up and are planning very definitely to clear up the use of engineering terminology so that the term "Engineer" will be applied only to those of a Professional standing.

We are very glad to co-operate with your organization in this matter.

Thank you for the copy of your report of the Proceedings of the National Council of State Boards of Engineering Examiners.

Sincerely yours,
(signed) WILLIAM H. STEAD,
Associate Director for Standards and Research, United States Department of Labor."

President Steinman has been conducting a campaign against the abuse of the term Engineer for many years.

LO! THE POOR ENGINEER

His Rating . . . Well?

The New York Sun of January 19th, carried the following item:

"The policies of an organization as great and as successful as the National Broadcasting Company are probably sound ones, but once in a while one hears of rulings that are inexplicable.

(*Continued on page* 25)

STATE ACTIVITIES ENCOURAGING

REPORTS THROUGHOUT COUNTRY INDICATE INCREASED INTEREST

The American Engineer acknowledges the contributions of correspondents and intends, as soon as the organization of its editorial staff is completed, to make announcements. Limited editorial space permits only of a synopsis of the news gleaned from a review of much correspondence. It is hoped that a rapid growth of the publication will overcome this serious editorial handicap.

Correspondents are urged to forward news items in time for the same to reach the Editor before the twentieth of each month.

FLORIDA

Invites President Steinman

The Florida Engineering Society has invited President Steinman, of the National Society, to address its Annual Meeting, to be held in Miami, April 4th to 6th.

Seek Legislative Amendments

The Southwest Florida Association of Professional Engineers has been in contact with President Steinman of the National Society and with Arnold G. Chapman, President of the New York State Society, relevant to amendments to the Engineering and Architectural Practice Acts, which would accord Engineers the right to file plans for buildings. President Chapman's outline of the procedure in New York is to serve as the basis for preparing the necessary revisions to the existing statute.

Status of the Surveyor

From Herbert D. Mendenhall comes the following account of the legal fight to compel County Supervisors to be qualified in accordance with the provisions of the Land Surveyors Registration Law:

"The office of County Surveyor seems to hold the same relation to the body politic as does the appendix to the body human with the exception that the appendix can be removed. The august, and usually venerable, County Surveyor cannot. Elected by the sovereign will of the pee-pul he persists—regardless of qualifications. But now it would appear that a new deal has been dealt, and the autocrat is about to be brought under control. In other words, Land Surveyors Registration Laws are beginning to appear in the land and with them the requirement that County Surveyors possess more technical qualifications than the mere ability to garner votes.

"In 1917 the State of Florida passed the first all inclusive Engineers Registration Law. Being the first law of its kind in the country, its sponsors were shaky about the reception it would be given, and, not wishing to arouse the active opposition of the politically potent County Surveyors, studiously avoided any reference to Land Surveying. This temerity persisted for a decade but in 1929 a bill to regulate the practice of land surveying was introduced in the State Legislature. True to expectations, the County Surveyors mustered sufficient opposition to kill it. In 1931 it was again presented, and this time—largely through the individual efforts of one engineer member of the House—it was passed. One of its provisions was that any County Surveyor—already duly elected and holding office—would not be affected by the act, but this exemption expiring upon the expiration of that term.

"This provision gave the then existing County Surveyors a short lease on life that the Registration Board could not challenge. However, with very few exceptions, all who presented themselves for

(*Continued on page* 16)

PENNSYLVANIA

Philadelphia Chapter Meets

With President Thomas Battin of the State Society presiding, the Philadelphia Chapter held its regular monthly meeting at the Engineers Club on Friday, February 8th.

Chapter President Jos. Gill opened the meeting and after appealing for support of the national, state and local programs turned the chair over to Major Battin.

For the conduct of business the constitution drafted by the Executive Board was provisionally adopted and a special committee appointed to prepare the same for final acceptance. The first Thursday of the month was designated for regular meetings of the Chapter.

Reports

President Battin reported on the organization program and activities of the Society and advised of the successful intervention in an instance wherein the Code of Ethics set up by the Society had been transgressed by a competitor for an assignment to a public project calling for professional services.

The reports of Secretary Keast and Treasurer on the membership and finances of the Society, indicated a satisfactory condition in both instances.

Reports of committees indicated interest and proposals for increasing membership were approved.

Conditions Up-State

A most encouraging and interesting account of conditions in several centers of the State was presented by Mr. S. I. Sacks who had made an official tour in behalf of the Society.

The response from such centers as Harrisburg, Scranton and Erie was especially encouraging and there is reason to hope that Chapter organizations will soon be effected in those localities. The influence of one strictly professional group already in existence in the Erie district of the State is suggestive of the value of professional Chapters in all the more populous counties. In the area referred to all occupants for official executive engineering positions are passed upon by the local professional body.

Election of Officers

Nominations for officers and directors to be elected at the Annual Meeting in April, will be received at the offices of the Society, 927 Widener Building, Philadelphia, and letter ballots forwarded to all members residing outside of Philadelphia. Those resident within the City are expected to attend and cast their ballots in person.

Society and Chapter Organization

Arthur V. Sheridan, Editor of the American Engineer, who was the speaker of the evening outlined the history of the professional society movement in New York and urged upon the Pennsylvania Society the social and political value of the county as a Chapter unit. The advantages of an organization, paralleling

(*Continued on page* 20)

OHIO

Joins National Society

The 56th annual meeting of the Ohio Engineering Society, which was held on February 12th, 13th and 14th, will one day be recalled as an historic occasion. The success of the National Society of Professional Engineers was assured at this convention. With more than 600 members of the profession and the Governor of Ohio in attendance at its annual banquet, Perry T. Ford announced that Chapter organizations in 86 out of 88 counties were in the process of formation; and on the following day the Ohio Engineering Society voted unanimously: to become the Ohio Society of Professional Engineers; to restrict membership to registered professional engineers and surveyors, and, to increase its annual dues.

To the Ohio Engineering Society and its officers, to the splendid virile State Board of Registration, and to the numerous Engineering organizations of Ohio, which together have accomplished this extraordinary feat in uniting the profession of the State, the American Engineer extends appreciation and felicitations.

Legislation

A measure that would exempt insurance companies from the provisions of the Professional Engineers' Registration Law, has been introduced in the legislature. Every Engineer should support the Ohio Society, the Board Examiners and Perry Ford in their endeavors to defeat this pernicious measure.

County Charter Revision

The Legislative Committee of the Ohio Society is formulating policies and recommendations relevant to pending County Charter Revisions affecting county Engineers and Surveyors.

Examining Board Active

The State Board has not only efficiently and conscientiously passed on some four thousand applications for registration, but has taken the leadership in organizing the professional Engineer of the State and in following and preparing all legislation affecting Engineers. Would that other State Boards would manifest the same interest. It would not have required ten years to make a law effective. A word of appreciation is merited and Ohio is to be complimented in having a Board composed of such men as Lattimer, Ford, Sours, Graf, and McWilliams.

A. A. E. Chapter Disbands

On January 29th the Turnbull County Chapter of the American Association of Engineers disbanded and transferred members and funds to the National Society.

NEW YORK

SOCIETY MEETING

Albany, March 2nd

The Winter meeting of the New York State Society will take place in Albany on Saturday, March 2nd, at the Hotel Ten Eyck.

President Chapman has advised that the Executive Board will meet at 11:30 A. M., and the Society will convene at 2:00 P. M.

No evening function has been planned but those wishing to remain for one of those informal get-togethers, for which Albany has acquired a unique distinction, can make arrangements upon arrival.

Among the important matters to be presented are:

Qualification examinations for candidates for licenses.

Pending legislation affecting Engineers.

Problems of Chapters arising out of affiliation with National Society.

Public works and relief problems.

Governmental abuses arising out of emergency situation.

Election of Nominating Committee for 1935-36.

Every Chapter is expected to be officially represented. All members who can are urged to attend.

CHAPTER NEWS

By RAPHAEL J. SMYTH

STEUBEN AREA

Thirty-three members and guests of the Steuben Area Chapter attended the annual dinner meeting held at the Hotel Sherwood, in Hornell, on January 9th, 1935. Mr. James S. Drake, County Attorney for Steuben Area, guest speaker, was warmly applauded for his informative and interesting address on the subject of "Highway Laws."

The officers elected for the ensuing year were: President, Mr. M. W. Wipfler, Elmira; Vice-President, Mr. H. F. Eilers, Corning; Secretary-Treasurer, Mr. J. H. Adolph, Hornell; Directors for 3 years, Mr. S. B. Ehrenrich and Mr. W. L. Collins, both of Hornell.

Messrs. H. E. Snyder, O. J. Dempster and J. H. Stevens, were appointed a committee to endeavor to organize the licensed professional Engineers of Tompkins County into a separate Chapter or to enroll them as members of the Steuben Area Chapter. The retiring president, Mr. S. B. Ehrenrich, in his valedictory address, complimented the members on their lively and sustained interest in the activities of the Chapter and made the interesting report that there was an average attendance of forty at the nine Chapter meetings which were held in 1934 during his term of office.

Mr. W. H. Davis received a cordial welcome on his return, after a prolonged illness, to active participation in Chapter work.

Courtesy: Mr. H. F. Eilers, Vice-President.

ONONDAGA COUNTY

Noteworthy enthusiasm was manifested, at the meeting of the Onondaga County Chapter held at the Onondaga Hotel, Syracuse, on January 7th, 1935, in the development of the National Society and the leading part taken in the movement

(*Continued on page* 17)

NEW JERSEY

Association Board Meets

The appended abridged minutes have been furnished by Gerald W. Knight, Secretary of the New Jersey Association of Engineers.

Meeting of the Executive Officers and Board of Trustees of the New Jersey Association of Professional Engineers and Land Surveyors held in the Hotel Hildebrecht, Trenton, New Jersey, January 24, 1935, at 1:30 P. M.

The meeting was called to order by Col. Hugh A. Kelly with the following gentlemen present: Hugh A. Kelly, President, Morris Goodkind, First Vice-President, Gerald W. Knight, Secretary, J. L. Bauer, Victor Gelineau, Hugh C. Clarke, Creighton D. Bickley, Prof. Albert R. Johnson, Arthur S. Hobby, Russell S. Wise, Arthur D. Bullock, Chester A. Slocum and Herbert W. Heilmann.

Minutes of the last meeting, December 12, 1934, were read and approved.

A motion was regularly made and seconded that the Executive and Trustee Boards go on record as approving fee and salary schedules as recommended by the special committee consisting of Messrs. Bauer, Randolph and McClave, and that same be put in force and be adopted by all state Chapters, and that the secretary mail same to all Chapters for guidance and enforcement. Carried, no dissenting vote.

The Secretary then read a statement in re: affiliation and dues of the National Society of Professional Engineers.

A motion was made and seconded that the State Secretary notify all Chapter Secretaries of national dues in accordance with the statement, and that bills be rendered and collections made through the chapters. The motion was carried.

In the discussion, it was the consensus of the meeting that the fiscal year of the State Association be changed from April to January 1st. Col. Kelly agreed to study the present act and take the necessary steps to bring this about.

The State Secretary tendered his resignation, to become effective at the time of the State Convention in March, together with recommendation that a temporary Assistant Secretary be appointed to assist in the secretarial work until a permanent secretary should be elected. A motion was made by R. S. Wise, seconded by J. L. Bauer, that Secretary Knight's resignation be accepted with regrets and that Mr. Ernest F. Weeks of Paterson be requested to fill the position of Assistant Secretary as recommended. The motion was carried.

Consideration was then given to Assembly bills 268 and 271, introduced last winter but on which no legislative action was taken. Letters from Dr. D. B. Steinman and Arthur S. Hobby were read presenting both sides of the question of a change in the present licensing law. Assembly bill 268 exempts corporations from the provisions of the act pertaining to licensed engineers, where the work is performed under the direction of a licensed engineer. The purpose of act 271 is to permit the State Board to grant professional engineers' licenses under one title—"professional engineer."

Following a discussion of this matter and an explanation by Col. Kelly as to the present classifications of Engineers, it was moved by Mr. Slocum, seconded by Mr. Wise, not to reintroduce the bills in the present session (1935) of the Leg-

(*Continued on page* 20)

CALIFORNIA

State Board Issues Bulletin

With the following salutatory the California State Board of Registration for Civil Engineers has, as of January, 1935, issued the first edition of the Registered Civil Engineers, a news letter of four pages.

Items of the bulletin include:

Salutatory

In response to many requests for current information regarding its activities, the State Board of Registration for Civil Engineers is prompted to undertake the issuance, three or four times each year, of a small bulletin to be known as The Registered Civil Engineer, of which this is the first number. The publication will be mailed to all registered civil engineers and licensed land surveyors and to a limited number of those otherwise interested. Each issue of The Registered Civil Engineer will include news relative to the administration of the engineers' and the surveyors' laws; interpretation of the board's rules and opinions of the Attorney General regarding the laws; reports of investigations, formal complaints filed, hearings and prosecutions; and other news of general interest. In each issue changes in, and additions to the roster will also be noted.

It is hoped that The Registered Civil Engineer will be of definite service to the registered civil engineers and to the licensed surveyors of California. The board will welcome constructive suggestions regarding it at any time.

State Board of Registration for Civil Engineers. Ralph J. Reed, President; Henry D. Dewell, Vice-President; Asa G. Proctor, Member.

Examinations

Forty-three candidates took written examination given in San Francisco and Los Angeles on October 25, 26 and 27, as follows: for registration as a civil engineer 22; for authority to use the title "Structural Engineer" 18; and for a license as land surveyor 3.

Results of the examination had not been announced when The Registered Civil Engineer went to press.

Structural Engineering

There seems to be an increasing opinion that only engineers who have been authorized to use the title "Structural Engineer" by the Board of Registration for Civil Engineers are authorized to practice structural engineering. In order that this question may be clarified, the law (section 1b) is quoted:

"No person shall use the title 'structural engineer' unless he is a registered civil engineer in this state and, furthermore, unless he has been found qualified as such structural engineer according to the rules and regulations established therefor by the Board of Registration for Civil Engineers. Application for permission to use the title 'structural engineer' shall be made to the board and shall be accompanied by a fee of ten dollars ($10.00); said fee to be retained by the board. Anyone who violates the provisions of this section is guilty of a misdemeanor."

The law can be interpreted only one way—it refers only to the use of the title. Every registered civil engineer is authorized to practice civil engineering in all its branches, including structural. However, it does not follow that a registered civil engineer may practice a branch of civil

(*Continued on page* 16)

MARYLAND

Association Holds Convention

The sixth Annual Meeting of the Maryland Association of Engineers was held on Thursday, January 31st, and Friday, February 1st, at the Southern Hotel, Baltimore.

Professor S. S. Steinberg, president of the association submitted his annual report in which he thanked the members for their cooperation, and outlined the various matters with which the Association had occupied itself during the preceding year.

Among the matters dealt with in cooperation with national organizations were: registration of Engineers; unemployment insurance; extension of the U. S. Coast and Geodetic Survey in the State; cooperation with the American Engineering Council and U. S. Bureau of Labor Statistics in its national survey of the relationship of the depression to unemployment in the profession.

In connection with the recent Four Billion Dollar Public Works Bill the association has requested its U. S. Senators from Maryland to use their influence to have the work performed under the contract system.

Registration of Engineers

No attempt was made to bring about desired legislation requiring the registration of Engineers because of existing economic conditions. Attention was directed to the bill of the Baltimore Chapter of the American Institute of Architects, which is now before the Legislature for the licensing of the members of their profession.

Certified List of Engineers

In lieu of legislation requiring registration of Engineers and Land Surveyors the association is considering the issuance of a certified list of Engineers and Land Surveyors for the information of the public desiring the services of such men.

Local Control Surveys

It is hoped that sufficient funds may be obtained from the recent four billion dollar appropriation to carry on the various local projects in connection with the drafting of adequate maps and survey control to meet the increasing needs of public and private requirements.

State Planning Commission

With the creation of the State Planning Commission a year ago a great stride was taken in the direction of the development of the resources and possibilities of the State of Maryland.

Relief for Engineers

Contrary to the general belief that the public appreciated the importance of the Engineer in the development of public and private construction, events of the immediate past have indicated that the Engineer is in fact "the forgotten man." He is classed with the "white collar" workers, who being less aggressive than the general labor group, have stood by while almost 95% of the relief funds have been expended on the latter class.

The more recent development of a general plan designed by experienced and courageous planners and requiring the supervision of competent engineers, it is believed, will gradually put every idle hand to work; dormant industry will become busy and economic stability will again be restored.

The following list of officers have been elected for the year 1935:

President, Prof. S. S. Steinberg.
First Vice-President, Nathan L. Smith.
Second Vice-President, B. L. Crozier.
Secretary, Leander Schaidt.
Treasurer, P. Y. K. Howat.
Field Secretaries, H. M. Parker and L. W. Kern.

Board of Directors: F. T. Norcross, P. A. Nicklin, J. A. Bromley, W. H. Cullimore.

WEST VIRGINIA

Favors Affiliation

On January 26th, President Steinman of the National Society, addressed the Huntington Chapter of the West Virginia Society of Professional Engineers. After twelve hours of traveling Dr. Steinman addressed the Annual Meeting of the West Virginia Society at the University of West Virginia in Morgantown.

Perry T. Ford, of Ohio, Chairman of the Membership Committee of the National Society, also addressed the West Virginia State Society and on January 29th the Society passed resolutions recording sentiment in favor of the State Society affiliating with the National body, and directing the preparation and submission of the necessary constitutional amendments permitting affiiliation.

Pending the submission of the said amendments, members of the State Society will be enrolled in the National Society in accordance with constitutional provisions therefor.

There is little doubt but that the spirit of E. W. Lyon, President, J. E. Settle, Vice-President, Robert Williamson, Secretary, Prof. Lewis V. Carpenter, Dean R. P. Davis, T. A. Polansky, H. A. Levering, and other pioneers unknown to the Editor, will awaken West Virginia Engineers to a realization of their potential value as a social, economic factor in that State.

CONNECTICUT

Registration Legislation Introduced

An act requiring the licensing of Professional Engineers and regulating the practice of engineering was presented to the State Legislature on February 1st. Proposal is patterned after the Model Law drafted several years ago.

Every engineering society in the State has endorsed the legislation and there is reason to believe that the measure will become a law.

The State Society, in addition to its legislative endeavors, is engaged in organizing committees in New Haven, Hartford and Waterbury as the nucleus for Chapters in those cities. Stamford and Bridgeport Chapters are fully organized and operative and with the passage of the registration act there is reason to believe that Chapter organization will proceed rapidly.

Professional Engineers are urged to affiliate with the movement, which has now spread to half a dozen of the most populous states, by joining the local Chapter of the Connecticut Society. The officers of the Society are:

President, W. S. Conlon.
Vice-President, H. E. Harris.
Vice-President, Z. F. Cappabianca.
Secretary, F. M. Brown.
Treasurer, C. S. Wendell.

Communications should be addressed: P.O. Box 689, Stamford.

OREGON

Postpones Affiliation

The "Professional Engineers of Oregon," after extensive discussion decided, at a recent meeting, that the Society was not at the moment in a position to affiliate with the National Society.

However, there is reason to hope that as soon as the movement takes hold on the Pacific Coast, Oregon will reconsider and lend its much desired name to the list of states already committed.

Secretary Dunway sends greetings and advises that the offer to place the columns of the American Engineer at the disposal of the Society will be presented at the next meeting.

MASSACHUSETTS

Manifests Interest

The National Society has received several individual applications for membership from Engineers in Massachusetts.

As yet no registration law has been enacted. However, the interest displayed suggests the hope that the time is not far distant when a State Professional Society and a License Act will be effected.

Persons interested in the National Society are requested to communicate with:

P. L. Fahrney,
General Sales Manager,
American Bitumuls Co.,
229 Broadway Place,
Everett, Mass.

Charles W. Stewart,
District Manager,
American Bitumuls Co.,
229 Broadway Place,
Everett, Mass.

Archer Norcross,
85 Lewis Road,
Belmont, Mass.

KENTUCKY

Votes to Join National Society

At its first Annual Meeting, held at Louisville, the Kentucky Society of Professional Engineers voted unanimously to affiliate with the National Society of Professional Engineers.

The meeting was addressed by President Steinman and Chairman of the Membership Committee Perry T. Ford of the National Society, after which a decision was made authorizing the necessary changes in the State Society Constitution to permit affiliation.

The movement is progressing rapidly and Kentucky joins South Carolina and West Virginia in the Dixie procession.

IOWA

Discusses National Society

At the annual meeting of the Iowa Engineering Society, held in Des Moines, the question of affiliation with the National Society of Professional Engineers was debated at length.

It was finally moved and adopted that the question be submitted to the membership by letter ballot, within the next three months.

The annual banquet of the Society was addressed by President Steinman of the National Society and Governor Herring of Iowa.

ILLINOIS

Steinman Addresses Convention

The 50th Annual Meeting of the Illinois Society of Engineers was held on February 1st and 2nd at East St. Louis.

Dr. D. B. Steinman, President of the National Society of Professional Engineers, addressed the meeting upon the subject of the National organization. A most enthusiastic response was forthcoming from the 200 Engineers in attendance and full co-operation was pledged by the State Society.

Legislation to register Civil Engineers was drafted and introduced after the Hon. DeWitt Billman, Secretary of the Illinois Legislative Reference Bureau of the State Legislature, ruled that the Model Registration Law would be unconstitutional in Illinois. While it is unfortunate that the proposed registration will apply only to a class of Engineers, the same is an improvement over the present law which pertains only to what has been termed structural engineering. It is to be hoped that a general law can be enacted several years hence.

The profession has an active advocate in the person of one of the members of the Legislature, the Hon. A. M. Kaindl, a member of the Society.

The efforts of Prof. H. E. Babbitt, Secretary of the Illinois Society, have been most effective in promting professional welfare, and to him and to the new President, Prof. G. W. Pickels, the American Engineer extends felicitations.

CANADIAN ENGINEERS

Ontario Society Hopeful

The following message from the new President of the Association of Professional Engineers of the Province of Ontario, has been extracted from the quarterly bulletin of that body:

"To all members of this Association:

"In assuming the office of President of this Association, my first message should be one of hope and confidence in the days that are ahead. We already know, and the world at large recognizes, the progress which this country has made towards normal earning and normal spending. The Engineering Profession will be one of the first to benefit by this reaction which is now definitely under way. The members of this Association must unquestionably participate in the prosperity which is Ontario's. And as we review our personal experiences of the past few years let us not forget that individual members of other professions have had problems which have been identical with our own.

"How true it is, that we all pay for our experience, or more properly, our inexperience. In retrospect, it is a simple matter to realize where mistakes might have been avoided. This fact is mentioned because of possibly, merited criticism which has been made from time to time of executive policy. I believe in criticism—it augurs well for any association when its members display sufficient interest to justifiably criticize the action of their elected representatives. The incoming Executive will indeed welcome suggestions from members which might guide or direct him in matters of policy. Their value may be immeasurable.

"The manner in which membership in the Association has been maintained during difficult years is an indication of the value placed on such membership. It is in tribute to the faith of its members that the Association will fulfill those purposes for which it was incorporated. It is my earnest hope that some progress may be made in that direction during the ensuing year. It is also my sincere wish that a full measure of health and prosperity may abide with each member and his household throughout the year on which we are soon to enter.

Yours sincerely,

J. CLARK KEITH,
President Elect."

MAINE

Engineers Recommend Registration

On January 19th Engineers of Maine met in Augusta to consider the introduction of a registration law to the State Legislature now in session.

From Bryant L. Hopkins, Secretary of the Maine Association of Engineers comes word to the effect that after long discussion a vote indicated over ninety percent of those in attendance in favor of immediate action.

The measure proposed, with few exceptions, follows the recommendations of the so-called Model Law. The exceptions pertain to matters peculiar to the State of Maine.

There appears to be little doubt that a great majority of Maine Engineers favor the enactment of a law regulating the practice of engineering. Some differences of opinion, censoring the older and better established practicioners is in evidence. While many, concerned primarily with the benefit to public and profession, are strongly in favor of registration, there are a few who are loathe to subserve personal interests to those of the calling as a whole. While it is true that established Engineers of mature years will gain little in comparison with the younger members of the profession, the fact remains that while the relative gains will be small in the case of older men and large in that of their juniors, the actual improvement to all will be ample compensation for an endeavor which seeks to benefit the individual through the profession, rather than through the medium of selfish personal endeavor which, in the long run, acts as a boomerang and actually injures its intended benefactor.

Engineers of other states, while recognizing the sovereignty of Maine and the intelligence of its people venture an appeal to their professional brothers of the north Atlantic to join in the nationwide movement to establish the Engineer in his proper place in the scheme of modern society.

At the January meeting Dean Paul Clarke of the University of Maine succeeded Herman Burgi, Jr., of Portland, as President of the Maine Association. Appreciation is due the retiring, and congratulations the incoming President.

CALIFORNIA

(*Continued from page* 14)

engineering in which he is not qualified. If he does, and it is proven that he is incompetent in that particular branch, his certificate is subject to revocation.

Editor's Comment:

Controversies within the profession are more dangerous than those with other callings. A single, comprehensive law, regulating all engineering as one profession, is the solution of this problem. Lawyers and doctors are not so foolish as to divide their forces.

Prosecutions

Although there are apparently a number of persons practicing civil engineering in violation of the State law, it is difficult to secure evidence without the full cooperation of the public and the engineering profession; yet the board's investigator's report which was submitted at the last board meeting, revealed that in twenty-four months twenty-three cases had been prosecuted in the local courts, resulting in twenty-one convictions. The maximum penalty assessed was a fine of $100 or 50 days in the county jail. In a number of cases, the fine and jail sentence were suspended, dependent upon good behavior for a period of from one to two years; or the defendant was placed on probation for a two-year period.

FLORIDA

(*Continued from page* 13)

election or re-election at the expiration of existing terms were not qualified either legally or technically but were duly elected anyway. Then the fun started. Insistent complaints began to pour in to the Board, specifying that unregistered men were being elected as County Surveyors. In a few cases it was found that the Governor had even appointed unregistered men to vacancies. When challenged, each offender, almost to the man, presented the defense that he held the office by sovereign will of the people or the people's executive head. And an appreciable number of reputable attorneys maintained the same point of view. Faced with this conflict of legal opinion, and raked by caustic criticism from the registered profession for not hanging and quartering every alleged offender, the Board in desperation resorted to the only conclusive move at hand and hailed one offender before the State Supreme Court on a "quo warranto" proceeding. After the customary interval, the Court handed down the opinion and it would now appear that henceforth all questions of conflict between the electorate and the Legislature in matters involving the determination or interpretation of professional qualification have been settled—at least in Florida.

"It is hoped that the success of the Florida Board, and the decision of the Florida Supreme Court will be of some use and comfort to other State Boards faced with similar situations."

Editor's Comment: This is but another result of the illogical procedure of dividing professional engineering and establishing a branch, viz., Surveying, as a separate calling.

INDIANA

Manifests Interest

News from Indiana indicates that practitioners of that State are manifesting considerable interest in the National Society of Professional Engineers.

The Indiana Engineering Society, like its counterparts in Ohio and Illinois, has passed the half century mark of achievement and in keeping with the spirit manifested in its sister States, has appointed a committee to examine into and report on the National Society.

The 55th Annual Meeting of the Indiana Society was held on February 14th at the Lincoln Hotel, Indianapolis. Mr. Harry O. Garman, a former President of the Society, and a Past President of the American Association of Engineers, was appointed Chairman of the special committee which is to report on the National Society.

NEW YORK

(*Continued from page* 14)

by Dr. D. B. Steinman and the New York State Society. It was resolved that the Chapter would take the lead in collecting and forwarding dues for 1935 to show its approval of this tremendous advance in the organization of professional engineering strength throughout the country. A personal canvas of all members in arrears has been organized to secure, by the end of February, the maximum possible collection of dues. The Chapter will compete for the honor of making the largest percentage contribution of membership dues to the National Society and challenges the other Chapters of the State to enter into a contest for that honor.

Courtesy: Mr. H. J. Dawson, President.

ALBANY COUNTY

The fires of enthusiastic interest in the progress of professional organization still continue to flame high on Capitol Hill; 135 professional Engineers attended the meeting of the Albany County Chapter at the University Club, Albany, on December 16th, 1934. Mr. Arnold G. Chapman, President of the New York State Society delivered a stirring address on the organization of the National Society. Hon. Elmer C. Lawton, Deputy State Commissioner of Highways, aroused notable interest by his discussion of the "Status of the Engineer in public opinion." An address on "Climatic conditions as they affect industries and civilization" by Dr. David H. Newland, State Geologist, was warmly applauded.

The new officers elected are: President, Mr. George A. Teeling; Vice-President, Mr. Robert C. Wheeler; Secretary-Treasurer, Col. Herbert S. Wilgus; Directors for 2 years, Messrs. Ellis Metzner and Russell G. Greenman; Directors for 1 year, Messrs. Thomas A. Devane and Charles H. MacCullogh.

The following committee chairmen were appointed: Mr. Maurice W. Williams, Membership Committee; Mr. Ellis Metzner, Ethics and Practice Committee; Mr. Francis X. Bode, Publicity Committee; Mr. Thomas A. Devane, Law Committee; Mr. Herman F. Lame, Entertainment Committee.

Plans are being carefully developed for an intensive membership drive and for both social and professional activities.

Courtesy: Mr. George A. Teeling, President.

NASSAU COUNTY

The following officers have been elected by the Nassau County Chapter to serve during 1935: President, Mr. Frank W. Saunderson, Cedarhurst, L. I.; Vice-President, Mr. Frederick W. Malkmus, Carle Place, N. Y.; Treasurer, Mr. Charles H. Weckerle, New Hyde Park, N. Y.; Secretary, Mr. S. E. Hunt, Mineola, N. Y.

ROCKLAND COUNTY

In conformity with a custom established by the Rockland County Chapter, to promote close cooperation between the members of the architectural and engineering professions in matters of mutual interest, the architects of Rockland County were invited to attend the regular monthly Chapter meeting which was held in the office of the Board of Supervisors, New City, on December 12th, 1934. Mr. Edward Wells, Supervisor of Clarketown Township, guest speaker, discussed the purposes and functions of the Federal Housing Act, stressing particularly the activities which can be engaged in by Engineers under Title II of the Act. The combined attendance was most gratifying.

Courtesy: Mr. Francis J. Wright, Secretary.

DUTCHESS COUNTY

A resolution was adopted by the Dutchess County Chapter, at its last regular meeting, which was sent to the proper governmental authorities, urging that the moneys derived from the taxation of motor vehicles and gasoline be used for highway maintenance and development. The Orange County Chapter has requested a copy of this resolution, presumably to cooperate in this worthy endeavor.

The following officers have been elected to serve during 1935: President, Keene Richards, care of Vassar College, Poughkeepsie, N. Y.; Vice-President, Harold R. Dean, 234 Main Street., Poughkeepsie, N. Y.; Secretary, Kenneth E. Pearce, 15 Hammersley Avenue, Poughkeepsie, N. Y.; Treasurer, Frank S. Hopkins, 20 Cannon Street, Poughkeepsie, N. Y.

MONROE COUNTY

On January 21st, 1935, at the annual meeting of the Monroe County Chapter, which was held in the Hotel Egleston, Rochester, Mr. Charles W. Marvin, after giving many years of inspirational leadership to the cause of organized professional leadership in the middle section of the State, laid down the baton of Chapter command. As a mark of the high esteem in which he is held and as a token of appreciation of the splendid services he has so unstintingly and faithfully rendered to Chapter and Society the members presented their retiring President with a handsome travelling bag filled to overflowing with grateful acknowledgements and good wishes.

The following officers and directors were elected: President, Mr. Howard S. Thomas; Vice-President, Mr. R. H. Hendrickson; Secretary-Treasurer, Mr. Henry R. Blodgett; Directors for two years, Messrs. Charles W. Marvin, Leo J. Brazill and Conrad V. O'Malley.

The City of Rochester is at present keenly interested in the problem of increasing its water supply and is pondering the merits of the following proposals, each of which has vigorous sponsors:

1. The securing of additional water by gravity from the upland lake area which is the source of the present supply.

2. The use of water from the nearer source of Lake Ontario and pump it 400 feet into the local system.

3. To repair leaks in mains and service pipes, and raise the tops of existing dams, thus producing sufficient additional supply to provide for anticipated needs, at the present rate of city growth, for some years to come.

4. To drive wells into the pre-glacial bed of the Genessee River which flows through the city. This last proposal has been advanced by Mr. Herman S. Fairchild, professor emeritus of the local university, a geological authority who has studied this source of supply exhaustively.

The problem is complicated by political activities for partisan advantage which greatly increases the difficulty of evaluating the solutions proposed. To help clarify the situation the Chapter is planning to hold a meeting to which the proponents of the various proposals and all licensed engineers—members and non-members—will be invited to analyze and discuss the plans proposed.

The Chapter is eager to render service in the community interest and will undoubtedly make a valuable contribution toward the solution of the problem.

Courtesy: Mr. Henry R. Blodgett, Secretary-Treasurer.

ORANGE COUNTY

There began at noon, 12:00 M., on Tuesday, January 15th, 1935, under the auspices of the Orange County Chapter, a series of 15-minute broadcasts, of topics of public and professional interest, which will continue to be delivered at the same time each week for a number of months. The broadcasts are being made through the courtesy of Radio Station WGNY, (operating on a frequency of 1210 kilocycles) at Chester, N. Y. The subjects which have, thus far, been definitely scheduled for discussion by prominent governmental officials and members of the Chapter are:

"The Engineer in Society:" Mr. Peter H. Bush, President of the Orange County Chapter; January 15th, 1935.

"Power Sources which serve the County:" Mr. E. M. Wilbur, Civil Engineer, Port Jervis; January 22nd, 1935.

"Surveys for Power Projects:" Mr. H. A. Manthai, Resident Engineer, Rockland Light and Power Co., Rio; January 29th.

"The Highway System:" Mr. H. L. Felch, Assistant District Engineer, Middletown, February 5th.

"Legal and Legislative Aspects of Engineering:" Hon. Thomas C. Desmond, Senator from Orange County.

"The Engineer in Public Life:" Hon. Wendell L. Phillips, Mayor of Port Jervis.

"The Park System of the County:" Hon. E. Maltbie Shipp, President of the County Planning Board.

"County Planning:" Mr. Peter H. Bush, 1 Lake Street, Monroe.

"Responsibilities of City Engineers:" Mr. Charles R. Woodhull, Newburgh.

"Engineering Planning of City Improvements:" Mr. Frederick X. Conrad, Port Jervis.

"City Planning:" Mr. Justin F. Gates, Middletown.

"City Manager Form of Government:" Mr. Joseph A. Fogarty, Newburgh.

"Development of the Skyscraper:" Mr. Corydon T. Purdy, Monroe.

"The Highway System:" Mr. J. R. Michaels, 41 Cannon Street, Poughkeepsie.

"Geology of Orange County:" Hon. E. Maltbie Shipp.

"Engineering Planning of T. E. R. A. Projects:" Mr. William J. Blake, Newburgh.

The broadcasting arrangements have been made by the Publicity Committee, under the chairmanship of Mr. W. H. Larkin, which committee solicits comments and criticisms of the broadcasts from Society members, addressed to the broadcasting station.

At the meeting of the Chapter held at Mitchell Inn, Middletown, on December 21st, 1934, Mr. R. W. Smith gave an interesting description of his experiences on a recent trip to Europe. Mr. Henry L. Felch discussed the motor vehicle tax and the evils resulting from its diversion from the use—highway construction—for which it was intended.

A Committee on Work Relief Projects was appointed to cooperate with the President, Mr. Peter H. Bush, in a planned endeavor to find or create work

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for the unemployed members of the Chapter. The committee consists of Messrs. W. R. Smith, Henry L. Felch, Charles R. Woodhull, Elwood M. Wilbur and Frederick X. Conrad. One of the duties of this committee is the formulation of a program of sound, economic and necessary work relief projects for submission to the County authorities.

The Chapter at a meeting held on January 18th, 1935, at Newburgh, adopted a resolution in which it deplored "the diversion of gasoline and motor vehicle taxes from highway construction and maintenance" and urged that the "State Legislature provide funds annually for a normal State Highway Construction and Maintenance Program and adequate funds for the maintenance of second and third class city streets used as State routes through these cities" and further urged cooperation with the "N. Y. State Automobile Association, the Highway Users Conference, the American Automobile Manufacturing Industry, Gasoline and Lubricating Oil enterprises, and other allied interests, to effectuate the purpose of the resolution."

Hon. Thomas C. Desmond, who has had the distinction, for a number of years, of being the only professional Engineer in the State Senate, introduced the following eight important bills on the opening day of the legislative session:

1. Establishing a state mortgage authority to relieve the present guaranteed mortgage certificate situation.
2. Constitutional Amendment for county governmental reform.
3. Legislative authorization of optional changes in county governments, pending adoption of a constitutional amendment.
4. Eight-hour day for employees in State institutions.
5. Raising of school leaving age to sixteen years.
6. Building of sidewalks for pedestrians along public highways.
7. Giving to the Conservation Department power now exercised by the legislature over minor fish and game regulations.
8. Taxing and controlling billboard advertising.

Senator Desmond's activity, ability and interest in promoting the public welfare have made him one of the outstanding figures in the upper legislative house. The Engineering profession is indebted to him for the introduction of many measures designed to increase the effectiveness of the professional Engineer in serving and safeguarding the interests of the people of this State.

Courtesies: Mr. Peter H. Bush, President; Mr. Frederick X. Conrad, Secretary; Mr. Elwood M. Wilbur, Publicity Committee.

NEW YORK COUNTY

"Mr. Edwin A. Kingsley," Vice-President of the New York County Chapter, "has made a voluminous report on the activities of the Mortgage Committee of which he is Chairman. A great deal of thought is being carefully given to this subject in the Chapter and close attention is being paid to pending legislation in the state. In regard to national affairs, the Chapter's Committee on Engineering for Government Projects is conducting a vigorous campaign to see that the profession gets fair and proper treatment. The next regular meeting will be held early in February."

Report by Mr. John Pickworth, Chairman, Publicity Committee.

WESTCHESTER COUNTY

The following proposed amendment to the Education Law was approved by the Westchester County Chapter at a meeting held on January 9th, 1935, in the White Plains Court House. "No map showing the boundary or subdivision of any parcel of land may be filed in the office of any County Registry in the State of New York unless such map is signed by a licensed land surveyor and bears the imprint of his professional seal." A copy of this suggested amendment was forwarded to the Legislative Committee of the State Society with a request that a proper draft be prepared for legislative introduction. A communication embodying the thought expressed in the amendment was addressed to the County Board of Supervisors with a request that procedure be instituted in accordance therewith.

The Presidents of the Westchester County Chapter, the Architectural and Engineering Alliance of Westchester County, the Westchester County Society of Civil Engineers and the Westchester County Society of Architects, have each appointed a representative of the respective societies to cooperate in an endeavor to establish a branch of the Professional Engineers Committee on Unemployment in Westchester County.

A schedule of Engineering salaries and fees, which has been prepared by the Architectural and Engineering Alliance of Westchester County, is being studied by a committee of which Mr. Charles H. Sells is chairman.

There has been inaugurated the practice of having debates at Chapter meetings on questions of public and professional policy, by teams composed of Chapter members. The subjects and debaters are selected by a committee under the chairmanship of Mr. Andrew M. Anderson. Prominent representatives of the Legal, Architectural and Engineering professions are invited to judge these contests.

On February 6th, 1935, the White Plains Court House was again the scene of a Chapter meeting at which Mr. John Avery, of Yonkers, presided.

The tide of interest in municipal government is now running high in Westchester and a large attendance gathered to listen to a discussion of the city manager form of municipal government by Mr. Herbert H. Sherer, the guest speaker at the meeting. Mr. Sherer spoke with authority having held the appointment as City Manager of Glencoe, Ill., for more than fourteen years—which is believed to be the longest recorded period of continuous individual service in a position of that kind in the United States.

The history of the city manager form of government was traced back to the City of Dayton, Ohio, when it was devastated in March, 1913, by a flood which cost nearly a hundred lives and $128,000,000 in property damage. The task of coping with the emergent necessity of affording relief to the distressed, repairing damage, restoring normal conditions and providing protection against a recurrence of the disaster was entrusted to Mr. Henry Waite, an experienced engineer of outstanding executive ability. Mr. Waite was armed with unusual power and the success which he achieved so aroused interest and prompted emulation that more than 400 cities of the United States have since been placed under the control of city managers. And as most of the physical activities of municipalities are of an engineering nature very many of these positions have been filled by Engineers.

Contrary to a popular belief it would be extremely difficult for a city manager to become a dictator. He is usually selected by a commission composed of five elective officers and is retained at their pleasure. His responsibility is to manage the city business with the economy and efficiency of a private enterprise and he is empowered to employ and discharge municipal employees and minor officials to carry out that purpose. But his own employment will continue only as long as he conducts the city business to the satisfaction of the commission responsible for his appointment.

Recounting accomplishments in that office he pointed out instances where fire insurance rates were reduced 40% and where water waste was decreased from 52% to 18% of total consumption as a result of the adoption of the city manager plan of government.

Mr. Sherer's informative address was warmly applauded.

Fourteen members of the Chapter were nominated to fill vacancies in the Board of Directors.

Courtesies: Mr. John Avery, President; Mr. Francis J. Laverty, Executive Secretary.

BROOME AREA

At the annual meeting of the Broome Area Chapter held on January 8th, 1935, at the American Legion Club House, Binghamton, the following officers were re-elected: President, Mr. Edward E. Stickney; Vice-President, Mr. Walker B. Lounsbery; Secretary and Treasurer, Mr. Herbert W. Grow; Directors for 3 years, Messrs. W. W. Perry and W. C. Ruland; Directors for 1 year, Messrs. Edward J. Quigley and Harold W. Lauder.

A joint meeting with the Ithaca Section of the American Society of Civil Engineers was held at the American Legion Club House, Binghamton, on February 19th, 1935. A report of this meeting will be published in the following issue.

Courtesy: Mr. H. W. Grow, Secretary and Treasurer.

BRONX COUNTY

Upwards of 70 members attended the monthly meeting of the Bronx County Chapter at the Concourse Plaza Hotel, in The Bronx, on January 3rd, 1935. As usual the Chapter meeting was preceded by a dinner meeting of the Executive Board.

A committee was created to cooperate with the Bronx Board of Trade in the preparation of plans for a Bronx Prosperity and Better Housing Exposition to be held from March 9th to March 16th, 1935; the following members were appointed to serve on this committee: Mr. John T. Knight, Chairman, Mr. Robert J. Eagar, Professor Alexander Haring, Mr. Raphael J. Smyth, Mr. Harrison Blankstein and Mr. Patrick Murray.

A speakers committee was appointed composed of Mr. Julius Harwood, Chairman, Mr.Russel S. Tonnesson, Mr. Milton Goldwasser, Mr. Henry Greenberg and Mr. Harrison Blankstein.

Consideration was given to the pro-

cedure set up by the Home Owners' Loan Corporation, which required that all plans of building alterations, on which loans are made by the Corporation must be prepared and filed by registered architects only. The Chapter moved that the H. O. L. C. be apprised of the provisions of the laws of the State of New York which place registered architects and licensed professional Engineers on a parity with regard to qualifications and powers to properly make and file such plans. Mr. Joseph F. Lamb, President of the Chapter, has advised the H. O. L. C. of the requirements of law and requested a modification of procedure in this State in conformity therewith. The cooperation of the State Society and the four other Chapters in New York City has been invited in this effort.

The establishment of a conference, similar to the Metropolitan Conference of some years ago, has been suggested, by the Bronx Chapter to the other four Chapters in New York City, to coordinate activities in enterprises in which there is a mutuality of interest.

The attention of the Chapter was directed to the fact that rates of compensation which are being paid for professional engineering services by governmental relief agencies are generally notably lower than rates for the services of skilled mechanics. This matter was referred for study and report to the Committee on Ethics and Practice of which Mr. Martin M. Corry is Chairman.

Courtesy: Mr. Raymond C. Sullivan, Secretary.

KINGS COUNTY

The following report of the activities of the Kings County Chapter has been received through the courtesy of Mr. Roy C. Cram, Secretary.

"At the January meeting the Chapter directed the Secretary to offer its congratulations to Miles I. Killmer, a member, on the receipt by him of the Thomas Fitch Rowland Prize, at the annual meeting of the A. S. C. E. for his paper on 'Fulton Street East River Tunnels.'

"The Chapter has created a committee to cooperate with the Architects' Club of Brooklyn in the protection of the professional interests of both professions particularly with respect to infractions of the licensing laws and the Chapter has recently cited several cases of alleged violations to the proper authorities.

"A committee of the Chapter recently prepared and presented an exhaustive preliminary report with plans and estimates, to the Long Island Ten Year Plan Committee, for a proposed freight tunnel to connect Long Island with New Jersey under the Upper New York Bay. The plans are being considered by representatives of the trunk line railroads and the Port of New York Authority. Such a facility is considered as vital to the welfare of all Long Island and particularly Brooklyn if the varied manufacturing interests are to be held here against the lesser rates found where direct mainland shipments are available.

"There is also a constant effort toward inducing governmental authorities to recognize the State licensing laws in the selection of engineering forces. It is realized that the most effective effort must be made at Washington, which brings out the value of National Society representation at the seat of government."

RICHMOND COUNTY

At the January meeting of the Richmond County Chapter the following officers were elected: President, Mr. Fred H. Zurmuhlen; Vice-President, Mr. James A. Pietsch; Secretary, Mr. John Rader; Treasurer, Mr. Ernest Neuschwander; Directors for 3 years, Messrs. William Merrifield and Joseph J. Welsh.

After years of intensive advocacy by the Chapter and civic organizations of Richmond County, the Chapter is jubilant over the inclusion, in the list of public improvements for which Mayor La Guardia is requesting the approval of the Federal Public Works Administration. of the Staten Island Rapid Transit Tunnel, the estimated cost of which is $47,000,000.

It was announced that 50% of the licensed professional Engineers of Richmond County are members of the Chapter.

Mr. Fred H. Zurmuhlen, Director and Chairman of the Membership Committee of the State Society and Business Manager of the National Society has the distinction of having been elected to serve as President of the Chapter for the sixth consecutive term; Mr. John Rader shares in the distinction of having been elected six times.

Courtesy: Mr. William J. Massa, Chairman Publicity Committee.

QUEENS COUNTY

The Queens County Chapter recommends the creation of a City Conference of representatives of the five County Chapters in New York City; is engaged in studies of the status of Engineers in the service of the City of New York and of bills introduced in the State Legislature which affect the Engineering profession; has under consideration the reduction of Chapter dues for the purpose of making it possible for a greater number of Engineers to become members of the Chapter and the State and National Societies.

Courtesy: Mr. Andrew K. Johnson, President.

LICENSES GRANTED

The State of New York, acting upon the recommendation of the Examining Board has granted licenses as Professional Engineers or Land Surveyors to the following:

SEPTEMBER, 1934

*Boyce, Ralph E., 31 Waller Avenue, White Plains.

*Brown, Francis L., 10 Lafayette Street, Whitehall.

*Breuchaud, Jules R., 155 East Forty-fourth Street, N. Y. C.

Grace, Wm. R., 216 St. Mark's Avenue, Brooklyn.

Haber, John H., 2205 Plaza, Schenectady.

Houston, Roscoe F., 309 East 109th Street, N. Y. C.

Janson, George W., 60 Hudson Street, N. Y. C.

Jordan, Alfred E., 17 Battery Place, N. Y. C.

*Klettke, Alex P., 2489 La Salle Avenue, Niagara Falls.

Krakauer, Jay F., 374 Eastern Parkway, Brooklyn.

Many, Seymour B., 472 Gramatan Avenue, Mount Vernon.

Martin Francis, A., 25 Broadway, N. Y. C.

Meadowcroft, William, 434 West 120th Street, N. Y. C.

Nielsen, Frederick A., 60 West Eighty-second Street, N. Y. C.

*Ranken, Howard B., 38 John Street, Cranford, N. J.

*Tepper, Albert, 1237 Woodycrest Avenue, Bronx.

*Waller, Percy, 278 Mulberry Street, Rochester.

*Webster, William B., 4 Adam Street, Whitehall.

*Aronson, Herman S., 618 Sackman Street, Brooklyn.

*Land Surveyor only.

OCTOBER, 1934

*Brzostek, Wm. F., 11 Ten Broeck Street, Albany.

Burke, Thos. J., 3 Spruce Street, W. Hempstead, L. I.

Campbell, John T., 813 Clark Building, Pittsburgh, Pa.

*Clark, Philip J., N. Y. S. Div. Highways, Watertown.

Dawson, James A., Arsenal Building, Department of Parks, N. Y. C.

Esherick, George J., Longview Road, Port Washington.

Farlin, Chas. D., 687 Manor Road, W. New Brighton, S. I.

Gaffney, Joseph B., 344 East 241st Street, Bronx.

Heyman, William, 1860 Broadway, N. Y. C.

Jares, Joseph, 92 Marshall Avenue, Little Ferry, N. J.

*Magadini, Amerigo J., 204 South Street, Port Jefferson.

Moffett, Lamont E., 380 Pearl Street, Brooklyn.

Rae, James G., 4296 Napier Avenue, Bronx.

Ridgway, James W., 1626 East Thirty-eighth Street, Brooklyn.

Robinson, Ray M., 214 Bryan Street, Rochester.

Rutan, Everett J., 92 Vandam Street, N. Y. C.

Sargent, Joseph A., 35-35 Eighty-second Street, Jackson Heights.

*Shelton, Murray N., Box 44, Dunkirk.

Teders, Joseph G., 610 Bard Avenue, W. New Brighton, S. I.

*Van Benschoten, Archie J., Mount Marion.

Vehslaye, Harold E., 26 Sage Terrace, Scarsdale.

Ward, Frank D., 514 Stranley Avenue, Mamaroneck.

Weinberger, Maurice X. C., 701 Seventh Avenue, N. Y. C.

Witulski, Henry S., 39 Crosby Avenue, Brooklyn.

*Land Surveyor only.

JANUARY, 1935

Bolaffio, Robert E., 25-30 Thirtieth Road, Astoria, L. I. (Queens)

Brennan, Michael, 181 Claremont Avenue, N. Y. C. (N. Y.)

Brierly, John R., 43 Summit Street, Brooklyn. (Kings)

Burton, Richard C., 502 West 143rd Street, N. Y. C. (N. Y.)

Christoffersen, Christoffer, 314 Seventy-ninth Street, Brooklyn. (Kings)

Drabkin, Philip M., 57 Perry Street, N. Y. C. (N. Y.)

Finstad, Christian M., 505 Oakland Avenue, West New Brighton, S. I. (Richmond)

Howard, Ernest E., 1012 Baltimore Avenue, Kansas City, Mo.

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NEW JERSEY

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islature, but to give this matter further study and have the Chapters report on these questions at the Annual Convention. The motion was carried.

A resolution was read by the Secretary, which had been presented by the Essex County Chapter, requesting the Governor to fill the present vacancies on the State Board and submitting three names for appointment.

Similar resolutions having been received from other Chapters, it was decided, following the discussion, to request all the State Chapters to select three names, one of a civil engineer, one a mechanical engineer, and one an electrical, mining or chemical engineer, and send said names to the State Secretary to the end that at least nine names might be submitted to the Governor for vacancy appointment, not later than the Annual Convention. On motion duly made and seconded, this was carried.

A resolution was read by the Secretary requesting the Emergency Relief Administration in Washington to continue the system of earmarking funds for the relief of professional persons in this State. The resolution was adopted.

The next meeting of the Board will be held on Wednesday, February 20th, at 8:00 P. M., room 710, Trust Company of New Jersey Building, Bergen Avenue, Jersey City.

Gerald W. Knight, Advisor, Made Technical Counsel to Governor

Governor Harold F. Hoffman has selected Gerald W. Knight, former Secretary of the New Jersey Association, as Technical Advisor for the State, with offices in the State House at Trenton. Much legislation will pass through the hands of Mr. Knight and the profession congratulates both New Jersey and Gerald Knight on his appointment.

Annual Convention

Ernest F. Weeks, Assistant Secretary, advises that the 1935 Convention of the Association will take place on Saturday, March 16th, at 1:30 P. M. in the Hotel Douglass, Newark.

To every professional Engineer of New Jersey, as well as those of the sister Societies in New York and Pennsylvania, a most cordial invitation to participate is extended.

Information on the National Society of Professional Engineers

Our New Jersey State Society is now a member of the National Society of Professional Engineers. This also means that every Professional Engineer member of the State Society automatically becomes a member of the National Society.

The National Society is a federation of State Societies. There are now five member State Societies in the organization, including New York, New Jersey, Pennsylvania, Connecticut and Illinois. Other applications for charter are pending.

The first fiscal year of the National Society commences January 1, 1935. The operation of the organization during the past half year, without dues, has been sustained by voluntary contributions.

Commencing January 1, 1935, each member State Society is assessed $4.00 per Professional Engineer member to support the activities of the National Society and its publication of the monthly magazine, the American Engineer.

In accordance with the above your total dues for 1935 will be $7.00 plus your County Chapter dues. Each County Chapter determines the amount of its own dues.

In accordance with the above your total dues for 1935 will be $7.00 plus your County Chapter dues. Each County Chapter determines the amount of its own dues.

In accordance with established practice, all dues are collected by the County Chapter, and the appropriate share transmitted to the State Society which will then transmit the proper share to the National Society.

The National Society is preparing individual membership certificates suitable for framing. These will be furnished without charge to all members for whom 1935 dues are promptly received.

Arrangements have been completed to commence the publication of the American Engineer as a national magazine in January. Arthur V. Sheridan is the Editor.

The subscription price for the American Engineer is included in your dues for 1935 and subsequent years. For outsiders, the subscription price is $2.00 per annum, or 20 cents per copy. Group subscriptions are taken at $1.00 per annum, or 10 cents per copy. Land surveyor members of the State Society are eligible to this group rate. Chapters are urged to collect and forward such group subscriptions at $1.00 per year for their Land Surveyor members and others, and to invest in such group subscriptions at 10 cents per copy for reaching prospective members or members in arrears.

The January and February issues of the American Engineer will be mailed to all members of the New Jersey State Society who have paid their 1935 or 1934 dues. Thereafter the magazine will be mailed only to paid-up members (those for whom the $4.00 share of the 1935 dues have been received by the National Society) and to subscribers. To avoid missing some numbers of the magazine, pay your 1935 dues promptly.

The co-operation of Chapters in securing and forwarding individual and group subscriptions to the American Engineer will be most helpful, not only in facilitating the financing but also in spreading the message of the National, State and County organization.

The growth of the National Society and its efforts to start additional State Societies are retarded by the lack of initial working funds. We are limited in the printing and mailing of membership campaign booklets. Traveling and other expenses of officers and committee chairmen are their individual contributions, in addition to their cash subscriptions to cover minimum organization expenses. On account of the time required for collection and forwarding of dues, it will be two months or more before the National Society will have needed working funds. The prompt commencement of publication of the American Engineer was, however, considered imperative by all of the State Society presidents and the National Society officers.

The National Society is therefore urgently in need of initial working funds to carry it through the formative period and to expedite progress until the dues come in. Contributions to the underwriting fund, as gifts or loans, from Chapters or from individual members are earnestly invited.

Communications from Arthur S. Hobby and Dr. David B. Steinman relevant to pending legislation, were read.

Excerpts from the letters of Messrs. Hobby and Steinman follow:

By Mr. Hobby:

"It is my considered opinion, that the licensed grade of 'Professional Engineer' should be conferred only on the Engineers of broad experience that qualifies them to practice responsibility in the major branches, and that the men of limited experience, or even long experience in a limited range of specialties should be licensed for the work they have proved themselves properly qualified to do. This would not improperly limit one's practice and acquisition of knowledge and experience in the other branches. It would simply mean that he would get that experience under the responsibility of one already qualified; and it would afford the public the protection to which it is entitled."

By Dr. Steinman:

"Others may wish to emphasize the diversifications of engineering into specialties. It is for us to proclaim the fundamental unity of our profession. Whether a man writes C. E., M. E., E. E., E. M., or Chem. E. after his name, he has the same common basic educational training, the same governing professional qualifications, the same method of analytical approach to technical problems, the same ideals of professional practice, and the same interest in the profession's problems of public recognition, protective legislation, and relations with other professions."

Editorial comment:

Law and medicine have as many specialties as engineering, but where does one find lawyers suggesting separate licenses for civil practice, criminal practice, admiralty practice, administrative practice, commercial practice, surrogates, real or personal estate practice and the divers other divisions of the conduct of law; or doctors calling for the separation of medicine into as many branches as there are human organisms.

NEW YORK

(*Continued from page* 19)

Janota, Louis, 22-06 Thirty-eighth Street, Astoria, L. I. (Queens)

Lewis, Harry S., 66 Lewis Avenue, Brooklyn, N. Y. (Kings)

McGregor, Robert, 25 Broadway, N. Y. C.

*Morrison, Roderick G., 35-33 170th Street, Flushing, L. I. (Queens)

Nacht, Albert, 151 East Eighty-third Street, N. Y. C. (N. Y.)

Soldatoff, Vassily V., 735 West 172nd Street, N. Y. C. (N. Y.)

Torsky, Nicholas K., 420 West 130th Street, N. Y. C. (N. Y.)

*Land Surveyor only.

PENNSYLVANIA

(*Continued from page* 13)

the political structure of the state government and patterned after the county unit system of the Bar and Medical Societies were stressed by the speaker.

General discussion followed the address of Mr. Sheridan.

PUBLICITY FOR LICENSE LAWS

(*Continued from page* 10)

the public fund available for the use of your board in administering and enforcing the state engineering law.

See Sections 68—1316 and 68—1317, Oregon Code 1930.

Also, from an examination of the proposed advertisements to be published in the newspapers, it is my opinion that they are not in conflict with any law and do not infringe any personal rights, but are a means of enforcing the engineering laws as above stated.

Yours very truly,
(Signed) I. H. Van Winkle
Attorney General''

With satisfactory assurance on these points, the Oregon State Board arranged for the publication at stated intervals in the various city and country newspapers of the state of a series of notices and warnings relative to the employing of unregistered engineers, and calling attention to the provisions of the act relative thereto. These notices met with prompt response on the part of the public, and inquiries regarding the scope of the law and its application at once began coming into the office of the Board. Information pertaining to specific violations of the law also resulted from this publicity, and consequent investigation on the part of the Board was at once undertaken.

The following five notices were run consecutively, one insertion a week, over a period of five weeks, in twenty-two daily newspapers throughout the state of Oregon outside of Portland:

WARNING
TO MINE OPERATORS

Oregon law, safeguarding life, health, and property, requires registration of anyone practicing *professional engineering*. Public faith reposes in the honesty and accuracy of engineers' reports on mining properties; and, thereafter, on the proper engineering supervision of mining operations and processes. Instances of unregistered persons illegally practicing professional engineering, (civil, electrical, mining, mechanical, logging or chemical) have been reported. For information write:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO INVESTORS

Registration of persons practicing *professional engineering* is required by Oregon law. The accuracy and honesty of *registered* engineers' reports on industrial and commercial properties and utilities, protects the public.

When violations of the law are reported in connection with unregistered persons illegally practicing professional engineering, (civil, mining, electrical, mechanical, logging or chemical) the State Board of Engineering Examiners cooperates with district attorneys in the law's enforcement. For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO EMPLOYERS

To comply with the Oregon Engineers' Registration Law, any person practicing professional engineering must be registered.

To protect the public, engineers' reports on projects and properties must be made by registered engineers.

When instances of persons illegally practicing professional engineering, (mining, civil, electrical, mechanical, logging or chemical) are reported to the State Board of Engineering Examiners, the Board cooperates with district attorneys in the law's enforcement. For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO ENGINEERS

Are you practicing engineering?

When violation of Oregon's Engineers' Registration Law are reported the State Board of Engineering Examiners' duty is to cooperate with district attorneys in the law's enforcement. The law protects life, health, and property by requiring registration of all persons practicing or offering to practice professional engineering, (mechanical, mining, civil, electrical, chemical or logging engineering).

Public faith rests on engineers' reports. Registration is based upon integrity and ability. For registration information write:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO INVESTORS, EMPLOYERS, MINE OPERATORS, ENGINEERS, INDUSTRIES, UTILITIES

Oregon law requires all persons practicing or offering to practice professional engineering to be registered, and in good standing. When violations are reported to the State Board of Engineering Examiners, the board cooperates with district attorneys in prosecution of violators.

Public faith reposes in the reliability of engineers' reports and proper engineering service. Registration of professional engineers, (mining, electrical, civil, mechanical, logging or chemical) protects the public. For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

The following four notices were run, one each month, over a period of ten months in the daily newspapers of Portland, Oregon:

WARNING
TO MINE OPERATORS AND MINING INVESTORS

It is reported to the State Board of Engineering Examiners, whose duty is to aid the several prosecuting attorneys or district attorneys of the State of Oregon in the enforcement of the Engineers' Registration Law, that persons apparently unqualified are representing themselves as mining engineers and are making engineering reports on mining properties. These reports are being used in turn by various persons and promoters as a basis for interesting the public in the purchase of stock or other interest in the properties reported upon.

The Engineers' Registration Law requires registration of any person practicing or offering to practice professional engineering in the state of Oregon. Professional engineering embraces mining, electrical, logging, chemical, mechanical and civil engineering. This law was passed to safeguard life, health and property.

For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO INVESTORS, EMPLOYERS, MINE OPERATORS, ENGINEERS, INDUSTRIES, UTILITIES

Oregon law requires all persons practicing or offering to practice professional engineering to be registered, and in good standing. When reports of violations, substantiated by competent evidence, are received by the State Board of Engineering Examiners, the board co-operates with district attorneys in prosecution of violators.

Public faith reposes in the reliability of engineers' reports and proper professional engineering service. Registration of engineers (mining, electrical, civil, mechanical, logging or chemical), protects the public. A recently compiled list of professional engineers in good standing is available to the public upon request.

For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO INVESTORS, EMPLOYERS, MINE OPERATORS, ENGINEERS, INDUSTRIES, UTILITIES

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Public faith reposes in the reliability of engineers' reports and proper professional engineering service. Registration of engineers (mining, electrical, civil, mechanical, logging or chemical), protects the public. A recently compiled list of professional engineers in good standing is available to the public upon request.

NOTICE TO ENGINEERS

Attorney General Van Winkle has ruled it mandatory for every professional engineer to procure and use a seal or stamp. Failure to comply should be reported to the State Board of Engineering Examiners of Oregon.

For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

WARNING
TO INVESTORS, EMPLOYERS, MINE OPERATORS, ENGINEERS, INDUSTRIES, UTILITIES

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NOTICE TO ENGINEERS

Failure to renew your certificate of registration while continuing to practice as a professional engineer, makes your certificate subject to revocation. Remember, the public is educated to have their engineering done only by a registered engineer in good standing.

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THE CHANGING UNIVERSE

(*Continued from page* 9)

mists in general still professed Aristotle, in their search for the philosophers' stone, they were not influenced by the manner in which their chemicals affected human senses but by how the chemicals acted on each other. The alchemists had to measure and to experiment. On the philosophical side, the teachings of Descartes aroused the idea of doubt in human minds. Scientists started to investigate on a large scale the properties of the material world and to organize their findings in the forms of natural laws. Newton's "Principia" laid the foundation on which science was to build for the next two centuries.

This new science viewed the world as a mechanism. It seemed objective, because it was founded on the properties of matter, independent of human sensations. True, there were often wide differences of opinions. For example, Newton was for a corpuscular theory of light, while Huyghens was for a wave theory. Maxwell's equations definitely settled the argument in favor of Huyghen's theory. The problem of relative motion, recognized by Newton, but of no great importance in his time, was at the close of the nineteenth century apparently solved by the theory of Fitzgerald and Lorentz of the contraction of bodies in the direction of their motion. All in all it seemed that science was on the right track.

It is difficult at this juncture, to see how scientists could have been so complacent. Science had two fundamental human concepts at its foundation; that of space and of time. Moreover, it had the seemingly inexorable second law of thermo-dynamics, space was considered absolute. But what were the limits of space? Could one simply say that it was infinite? If so, the concept of space was worthless. Can one imagine time as limitless when according to the second line of thermo-dynamics the universe is running down. If so then the universe should long ago have been annihilated. It would therefore seem that one can accept a mathematical measure of time.

Discrepancies such as those just noted must have been apparent to many scientists. It must also have been plain that something was fundamentally wrong in physics and that it would involve Newton. It was at this time that Planck announced the quantum theory and Einstein the relativity theory. Both theories have something "unphysical" about them; in other words, if one carried everyday physical experience into the realms of the microcosmic and the macrocosmic he would not suspect the principles that are involved in the two theories. Natural science has come to the third stage, to a mathematical concept of the universe.

The quantum theory is that of the microcosmos. It states in short, that energy is atomic. It offers a parallel in the theory of energy for the atomic theory of matter. The importance of this theory becomes apparent when one remembers that physical laws as a rule, are based on mass-action. As such, they may be deceiving and cause contradictions in the philosophy of nature; contradictions, which may be solved by the quantum concept.

The relativity theory is that of the macrocosmos. At least it has its main application there. It says in the main: here we live in our world like passengers of a ship on a perfectly smooth sea. We have nothing at our disposal to determine our absolute motion. We formulated our natural laws relative to this ship. We may have some human preconceptions and carry those preconceptions over into laws that are independent of the ship. Those preconceptions must be found and discarded. The relativity theory indeed does away with our concepts of space and time, so far as science is concerned. One must not conceive time as something permeating infinite space uniformly and thereby causing instantaneity all over the universe. Even if instantaneity did exist, there would be no means of ascertaining it. One, therefore, must conceive a space-time continuum, something that can be expressed only mathematically, which new concept explains certain discrepancies in observed nature. An outstanding example is gravitation. Newton knew that mass times any kind of an acceleration gives force. Now, a mass on a string swung in a circle gives a centrifugal acceleration, hence the pull on the string. Is there a connection between centrifugal force and gravitation? The relativity theory answers in the affirmative and explains gravitation as a sort of centripetal force in the space-time continuum. In this new light the motion of the planet Mercury could be accounted for, which was not possible on the basis of Newtonian principles. Science departed from the standpoint of Newton, though at the expense of conceivability.

Although the principles involved in the quantum theory and relativity theory are abstruse, one may confidently say that they simplify the human concept of nature. True nature can no longer be comprehended in physical terms but it must at least be approached by a creation of the human mind, viz., the mathematics. And the mathematical picturization frees science of the contradictions that were a necessary consequence of a physical picturization. We simply confess that we cannot imagine what certain elements of nature are, or how they intrinsically work, but we are able to tell what result to expect under certain conditions. To illustrate the point involved, the physical theory of the universe, the decomposition of radium, and the second law of thermo-dynamics are chosen.

The physical theory recognizes matter and atomicity. It seems that these two terms are contradictory. The human concept of matter includes the concept of infinite divisibility. There is no sense in saying that the smallest particle of matter is an atom, or an electron, and the divisibility stops right there. The natural question arises, why should there not be half an atom or half an electron? Now, it is known that the electron acts sometimes as a particle, and sometimes as a wave. One may, therefore, answer the last question by saying that the electron can be regarded as a wave, and that physically half a wave is meaningless; there must be a whole wave or nothing. But the minute one makes this concession he is off the physical ship and into the waters of mathematics. Again, there are energy levels in the atom. The natural physical concept would be that the electron should spiral from one level into another whenever a change in the internal energy of the atom was taking place, but this would contradict the quantum theory wherein the electron must be on an energy level in the atom or nowhere. It cannot exist between two energy levels. Suppose one comes to the rescue with an hypothesis which assumes that time is atomic and will stop while the transition from one energy level to the other is taking place. One should be compelled to establish a kind of special relativity theory of the microcosmos, which again would be inconceivable in physical terms. It would seem, then, that whatever is smaller than an atom is not matter in the common sense of the word.

The decomposition of radium is a uniform, continuous process, but if decomposition is inherent in the radium atom, what makes one atom break down in preference to another? In other words, why do the atoms not all break down at once? Jeans gives the following analogy: Imagine an immense room, and in that room a number of card players; before the game starts the players make an agreement to leave the room in the event they are dealt certain hands of cards; as a consequence, one would see a steady stream of card-players leaving the room, but no prediction could be made as to the order in which the various players would leave. Of course, in this analogy there would be a physical reason for certain players getting certain hands, i. e., the shuffling of the cards. Similarly, Planck believes that there might be an underlying physical reason for certain radium atoms decomposing while others do not. But at best one might only hope to find a law of dynamic equilibrium for the decomposition of radioactive elements. The problem at the present state of natural science, can be treated only as one of probability.

The second law of thermo-dynamics receives at the hand of the quantum theory a new interpretation. The atom can give off and receive energy only in fixed amounts. This makes the process reversible. The increase of entropy in this light means a change from a less to a more probable state, but one must put emphasis on the word "probable"; the process could also work the other way. Eddington expresses it in a popular way: if a pot of water is placed over a fire, the water usually boils; but it may also freeze. Again one might say that there might be an underlying physical cause for the great number of energy-quanta and energy-levels in the atoms of the universe and their reacting to one another. But this is a problem impossible of solution. Again we rely upon probability.

However, another implication should be mentioned. If the second law is a matter of probability, there is still one possibility of maximum antropy, and in infinite time this would naturally occur. If there were a physical cause underlying the second law, this case of maximum antropy could be interpreted as the heat-death of the world. In other words, the thermo-dynamicaprocess could stop at this point.

The above illustrations are set forth in an endeavor to give an idea as to how nature is looked upon to-day. It must be clear that even the mathematical view of natural phenomena is far from comprehensive. There is the relativity theory for the macrocosmos, the quantum theory for the microcosmos, but so far no general theory applicable to both.

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ENGINEERS AND UNEMPLOYMENT

(*Continued from page* 8)

Contrast this program with conditions in the Engineering Profession, where many of the Engineering schools do everything they can to attract the boys in the high schools, and all applicants are welcomed. Any high school graduate can easily secure admission in an Engineering School, and all who apply are admitted without regard to Engineering qualifications or aptitude.

The medical profession is not satisfied with the remarkable progress it has made since 1904 in curbing its growth in numbers, and it studies with concern any slippage or reversal of trend. The following editorial appears in a recent issue of the Journal of the American Medical Association:

"The evils of overproduction in many fields have been vehemently discussed of late. The spotlight has been turned on surpluses of cotton and corn, but little has been said of the graver menace of excess production of physicians. The Commission on Medical Education in its final report a year ago pointed out that the ratio of doctors to population was increasing. Elsewhere in this issue of the Journal, the Council on Medical Education and Hospitals presents its annual compilation of the reports of the state boards of medical examiners. In 1933, 5012 persons were added to the medical profession through licensure, the losses by death for the same period being approximately 3,500. The net gain, 1,500, is about one per cent of the number of physicians actually practicing in the United States. The census of 1930 shows an increase in population during the preceding decade of 6 per cent, or an annual rate of increase that is something less than six-tenths of 1 per cent. Since all students of the question agree that the rate of increase is diminishing and that the country is tending toward a stable population, it is evident that the medical profession is increasing faster than the general population and that, unless the states promptly initiate measures to restrict the number of those licensed to practice medicine, a great surplus of unemployed doctors will become apparent. The social implications of such a condition would by comparison render the well-known surfeit of agricultural products relatively innocuous."

The 1933 report of the Council on Medical Education of the American Medical Association states: "These figures indicate that some 1,500 have been added to the already overcrowded medical profession. . . . The ratio (of physicians to population) is about twice as great as it is in England, France, or Germany. . . . The proper adjustment of the ratio of physicians to population is a matter of vital concern."

The engineering schools of this country are turning out over 10,000 graduates annually (11,595 seniors in 1931). The number removed from the engineering profession by death annually is about 4,000. Hence over 6,000 college-trained engineers (net increase) are being added annually to an already overcrowded profession.

The total number of physicians listed in the U. S. is 161,361. The total number of engineers, including all who so classify themselves in the 1930 Census, but excluding those below the age of 25, is 198,358.

If the medical profession views with alarm an increase of 1,500 in its numbers, how should the engineering profession view an annual increment of 6,000 or more?

The rapid growth of engineering enrollment 30 or 40 years ago is understandable. With only 2,000 college-trained engineers in the country in 1890 and 32,000 engineers needed, the deficiency was made up by 30,000 non-college men drawn from the ranks. Engineering education was speeded up with accelerated volume in order to fill the vacuum. Now that the deficiency has been made up and the vacuum is filled, is it not time for the filling process to be decelerated?

In his excellent article "Are the Professions Crowded?", published in Civil Engineering for January, 1934, David L. Fiske shows by statistical analysis that the engineering profession has reached conditions of saturation even prior to 1930, and reveals danger signals for the future. The editorial foreword states: "There are very clear signs that the engineering profession will be overcrowded probably to a greater extent than any one of the other professions."

Is it not time for the engineering profession to do what the medical profession did in 1904,—undertake a program of rigorous selective limitation for education and for admission to practice?

On the basis of the best available information of past statistics, and extending recent average trends of change to the immediate future, the statistical picture of the engineering profession is presented by the following tabulation:

ENGINEERS IN THE UNITED STATES (Ages 25—64)

Year	Engineering Students	Living Graduate Engineers	Total Engineers Employed	Engineers Unemployed*
1890	1,000	2,000	32,000	
1900	11,000	8,000	34,000	
1910	30,000	31,000	68,000	
1920	52,000	80,000	117,000	
1929	68,000	150,000	195,000	
1930	70,000	158,000	160,000	35,000
1932	73,000	175,000	100,000	112,000
1940	79,000	250,000	205,000	82,000
1950	84,000	350,000	248,000	139,000
1960	88,000	450,000	257,000	230,000

(*Counting 37,000 non-graduate engineers.)

It is not sufficient to arrest the growth of engineering school enrollment. The integral of a horizontal line is a line of ascending slope. The past trend must be *reversed*, and total enrollment in engineering schools must actually be reduced if the excessive growth in the total number of engineers is to be curbed.

To maintain a constant ratio of engineers to population, allowing for mortality and population growth, the engineering schools should graduate only 5,000 annually instead of the present rate of 10,000 or 11,000. The total number of engineering students should be 35,000 instead of 70,000, and the number admitted annually to the Freshman class should be 13,000 instead of 27,000.

Despite this indication of a critical necessity to curb enrollment, there are engineering educators who continue to present to high school boys and their parents an optimistic picture of a shortage of trained engineers.

Against any conclusion of overcrowding, these educators proudly advertise that 70, 80, or 90 per cent of their recent engineering graduates have secured employment. The fact is overlooked that the obtaining of positions by these younger, more recently trained, and lower-priced men is generally at the expense of displacement of men in the next higher age groups, and that these younger men face similar crowding out of the profession by the economic competition of succeeding batches of graduates.

The same educators also resist any proposal of selective limitation of student enrollment with the argument that "Engineering is a culture as well as a career," and that an engineering education is good for any man even if he goes into other callings. The same thought is used in enrollment propaganda. Nevertheless it would be interesting to ask these educators how many of their students are enrolled in engineering merely as a culture without intending to follow it as a career. The answer would be negligible or nil. The fact remains that probably 99.9 per cent or more of the enrolled engineering students have chosen engineering as their profession and, when they graduate, they are added to the competitive struggle for engineering employment. Some of them may fail and be forced to enter other occupations, but until they give up their struggle they constitute an addition to the competitive oversupply tending to depress the economic standards of the profession. There are plenty of recent graduates begging for jobs in engineering offices, even without salary.

A great deal has been said and written regarding the economic status of the engineering profession, and the desire to secure more adequate compensation for engineers. Reports, codes, resolutions, and speeches will not go very far in solving this problem. In the ultimate analysis, the answer to the economic problem is given by the inexorable law of supply and demand. So long as there is an excess of supply over demand for any commodity, or any service, the price or wage tends to be reduced to a starvation level. This is the first principle of economics. The only way to improve the economic situation of the engineer is to increase the demand for his services and reduce the oversupply of engineers.

PUBLIC WORKS PORTFOLIO

(*Continued from page* 5)

of these United States, convinced that the present may be shortened and the future brightened through the recognition and acceptance of engineering counsel in directing the destinies of America.

ENGINEERS AND THE FUTURE

(*Continued from page* 6)

public to support the Government. Aside from the temporary aid which the Federal Government must give in this emergency to prevent starvation, our duty must be to minimize and decentralize the authority exercised over us from Washington.

TWO MENACING PERILS

There are two particularly menacing perils which threaten our individualistic philosophy and our system of popular government at the moment.

The first may be found in the profligate spending of public funds, far in excess of income, and the accumulation of a debt burden, so stupendous as to threaten public credit. If public credit goes, private credit will go with it and economic life will be forthwith reduced to chaos.

The fear of such an outcome is not an idle one. The total state, county and city indebtedness is seventeen and one-half billion dollars. Adding the two, local and Federal debts, we have an approximate sum of fifty billion dollars.

We therefore, owe more in public debts than our entire national income for the current year. This of course, ignores the many more billions of private debts.

Local and State governments costs are nine billion, six hundred million dollars, so that the combined tax load for the country this year is thirteen billion six hundred millions, or 30 per cent of the estimated national income which must be paid for taxes alone.

We have pledged our credit already for more than the total annual income of the entire country. We have piled up the tax exactions until they represent nearly one-third of this annual income.

The other danger which threatens our democratic institutions and against which we must be ceaselessly on guard, is the swift growth of bureaucracy. Already the total number of citizens who derive their entire support from the Government payroll of one sort or another, include one in every five. This is a sufficient number, in our two party system, to control any national election since the Civil War. If we permit the establishment of a self-perpetuating bureaucracy through the power of the votes of the beneficiaries of such a system, our popular institutions will be destroyed and our liberties will vanish just as they have for the peoples of Italy and Germany, in each of which countries but one political party is tolerated and permitted to exist.

Those measures of a purely emergency character which have been undertaken solely to increase employment, may be justified, but unless we halt the very definite plans now being put into effect by many of those high in Administration counsels, we shall find ourselves saddled with, and the victims of, the greatest bureaucracy ever erected in the world.

The injury that has been done the Engineer in private practice by Federal paternalism and the expediency program; and he is the hope of the future, let me assure you, will be gotten over presently, if we assert ourselves now, and, instead of thinking most about a handful of shekels to be had in a Federal pay envelope, bend our most constructive thought toward sound and enduring measures, and about our part, as an organized unit in their shaping.

Want and need prevail among Engineers and relief work does indeed, seem to have provided the fender against suffering for a relatively large number of them, but let them not think that Federal Relief is the panacea. In my opinion, the thing is only to be tolerated so long as large numbers of our profession and their families face hunger.

WORK SYSTEM GIGANTIC WASTE

But I also see some other things that you must see too if you haven't seen them already. I see that dispensing pauper allowances under the thin veneer of a work system is a public charity which is to be paid for out of taxes. The work system of the Federal Relief Administration is costly, inefficient and ineffective. I admit it; they admit it. It dissipates normal planning and contracting procedure into, generally speaking, fanciful undertakings that cannot possibly be accomplished effectively or economically. It is loaded with procrastination and red tape and it moves too slowly to meet the requirements of the recovery program or the intent of its legislative sponsors. In short, it is a gigantic waste which we as engineers cannot afford to endorse or tolerate.

Don't confuse Relief with the P. W. A. The Public Works Administration is doing and has done some grand work. The Public Works is the one program sponsored and advanced by Engineers. More power to it.

If the pouring in of Federal money were really making people healthier and happier and more friendly, as was promised Mr. Average Citizen, we could perhaps, lend ourselves to it, or wait to see how it worked out, but it isn't working out that way.

A class of people is being created who will never willingly work again. They are, as pointed out, learning to live on public money, and they are beginning to be careless about it, because they feel that there is so much where that came from. I am told by those who have devoted their lives to relief work that there is a general change in the attitude of their clients. The clients were formerly thankful for the help they received, now they demand it as a right. They say that they are entitled to a "share." These are not taxpayers, they may never have contributed one cent to any public funds, but they believe that public funds belong to them. Many of them make no special effort according to reliable information, to take care of the clothing and shoes given them, when what they have been given is worn out, they go to the Relief Office and ask for more.

The political aspect of this is ugly, and can no longer be ignored. If a man feels that a vote can be substituted for a job, if he intends to live by means of his vote or by getting power over other votes, he is corrupt. You are aware of the significance of this.

The fumbling of a Government is usually the result of philosophical fumbling on the part of a people. This has been true enough for the past year and a half. The people wanted change. They wanted a check on profits. They wanted control of industry. Every clear hope and change in psychology of the American people has been reflected in the actions of Government sooner or later. Where the American mind has been confused, the Government has been no better, no matter how many brains it has in trust.

It's about time the Engineers asserted themselves and did some political thinking!

ENGINEERS AND ETHICS

(*Continued from page* 7)

reasonably defend their contentions as justified in the emerging social system. But what means have they to achieve their objectives? A brief reference to the implements employed by other groups may be interesting. Organized labor, for example, frankly eschews over-refinement of method, and snipes with "collective bargaining," holding the heavy artillery of the strike always in reserve. It also wields potent political weapons. Politicians shiver at the thought of the "labor vote," and much state and federal legislation bears the imprint of the labor finger in the legislative pie. So important is this influence that representatives of labor sit on the boards that decide, for example, the rate of pay for unemployment relief work. Crossing to the other border of organized groups it is found that the American Association of University Professors give battle with the "black-list" for colleges and universities that handle its members too roughly. Do not think that these pedagogues cannot throw a fright into the most reactionary board of trustees. Colleges and universities enjoy being on this black-list like they enjoy reduced appropriations. And these professors often move with real belligerency to the defense of a mistreated colleague. They do not seem to be troubled about the ethical quality of their black-list.

The medical profession has achieved perhaps the highest and most clearly recognized professional status of any group. The profession practically dominates medical education and the machinery of admission to practice, and they have seen to it that a man travels a long and weary road before he can call himself a doctor of medicine. There is no twilight zone; a man is a doctor or he is not. Their professional societies are admirably organized, codes are definite, and the control and direction of professional activities is wholly within the profession. There has always been a sort of legendary mystery about the medical art that holds men in a sort of awe of its practitioners, which makes it easy to maintain a scale of fees that is free of all mystery except as to where you are going to get the money with which to pay them, and this completely preserves the awe.

The brethren of the law have the simplest system of all if you can but master it; they simply take possession of the country and run it. Laws are made, interpreted, and, in the main, enforced by lawyers. No other group has achieved a remotely comparable influence in public affairs, and no other group has been so ready and ingenious in finding and preserving its place in the sun. It is not a matter of getting recognition for them, but rather a problem for the rest of the country to get some recognition from them. The comparatively youthful profession of certified public accountants seem to keep a weather eye on recruits; they exercise an admirable forbearance about letting down the bars for any man who can crank an adding machine. The latch string just doesn't hang outside in this profession. In like

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ENGINEERS AND ETHICS

(*Continued from page* 24)

manner the pilots associations have complete control of the training and admission of pilots; they know how many pilots will be necessary to do the available work and they let in just that many.

It appears that all professions, with the exception of engineers, have more effective means for self-preservation than a mere reliance on a sort of immutable social justice. They have set up codes and rules of practice which are designed to make the various professions of greatest service to the public, but they never achieve anything like the engineer's complete insensibility to his own welfare. The only explanation that can be given is that they are more intelligent and more resourceful than the engineers. There is constant complaining and adding to the already abundant mass of evidence as to the unsatisfactory professional status of the engineer, but he has never achieved that unity of purpose and action that would enforce corrective measures. The time has come, it is believed, to do something other than complain. If there is no more effective weapon at their disposal, let them take the veil of self-abnegation and look for their reward in the next world.

This committee frankly does not know what to suggest by way of a more effective effort to achieve legitimate professional aims. Much is heard about "educating the public," and councils, and other organizational machinery to tackle the problem. Little can be expected of this until there can be developed some procedure that is backed by force and inspires fear.

The mention of force and fear as implements of professional advancement encounters two insuperable difficulties, (a) that it is unethical and wicked, and (b) that the makings of either are not possessed. In the engineers present state of mind both of these objections are true. But in this evolving social order, as well as in all other social orders, social justice as a result of the social-mindedness of the public, is nothing but a pretty phrase. It has been force and fear that have acquired rights and justice and maintained them. Only through a willingness to fight for rights have rights been acquired. That is not as bad as it sounds. Force is not always an ugly thing. It is often, even when exercised in gaining personal ends, wholly benevolent. It may be softened by persuasion, made ethical by the rectitude of the cause for which it is employed, and rendered harmless to those against whom it is directed. It is entirely conceivable that engineers might get themselves so organized and directed that force could be used without doing the slightest violence to their ideals, or injury to the public. But the committee realizes that it is only day-dreaming.

THE CHANGING UNIVERSE

(*Continued from page* 22)

A general theory of the universe should in addition, include physiological and psychological phenomena. If there were a general mathematical formula including all these and the mathematical formula were interpretable, then we could hope to know the absolute truth.

Skepticism can be carried a step further: is there really an absolute order of nature? Would there be any sense in the existence of a universe without a conscious being observing it? Consequently, in the final analysis, is the order of nature after all not relative, relative to the mind observing it? There seems to be little danger that the geniuses of coming generations will be out of jobs. The following quotation from Goethe would appear to a fitting conclusion:

Faust: "Mich duenkt die Alte spricht in Fieber."

Mephisto: "Das is noch lange nicht vorueber!"

PUBLICITY FOR LICENSE LAWS

(*Continued from page* 21)

For information, write to:
State Board of Engineering Examiners
Railway Exchange Bldg., Portland, Ore.

While it is impossible to know the extent of the benefit thus far accrued both to the public and the engineering profession, correspondence that has been received at the Board's office and personal calls at the office as a direct result of this publicity given thus far, indicate two things: first, that the public in large measure was rather meagerly informed as to the existence of the Engineers' Registration Law and consequently of its application; and, second, that, upon having the Law brought to its attention, the public is keenly interested and is anxious to learn of the scope and application of the law and to avail itself of the protection afforded by the law's enforcement. It is the belief of the Board that the benefits of this publicity, while necessarily intangible to a large extent and hard to specifically determine, is yet well worth the expense and effort involved in this educational campaign and that even more outstanding and widespread advantages will accrue as time goes on than have been manifest to date, through dissemination of knowledge of the law and its workings that will follow as an indirect result of this original publicity.

ITEMS OF GENERAL INTEREST

GOVERNMENT PRACTICES

(*Continued from page* 12)

drawings. These changes sometimes are imperative due to manufacturers changing their products, as did the steel companies recently, in revising the rollings of structural beams.

In private practice it has been universally recognized that the design (i. e., the original set of drawings) is the property of the designer and remains in his permanent possession. He has zealously guarded his files and these records, coupled with his personal knowledge of them and the fact that he is an established practitioner, have often proved valuable at later dates.

On Federal Government work this has been deemed impracticable and tracings approved by the proper authorities have been transferred to the custody and the practical possession of a departmental agency. This has led to malpractice which constitutes a threat and danger to the whole Engineering Profession. The condition should be studied and made clear to all before its firm establishment does irreparable harm.

The functioning of the governmental departments is necessary, not only to make known and correlate the requirement, but to conduct the contractual, financial and other arrangements. If they wish to make suggestions and check figures, it is their privilege. It is for these purposes of departmental functioning that qualified engineers should be retained on a basis of salaried employment.

It is not unusual for individual Engineers in positions of authority to overlook duty to their Profession, and particularly under official pressure they are apt sometimes to be unjust, through excessive zeal or oversight, in favor of their employer.

Awed perhaps by the omnipotence of the Government some consultants may, when they learn of what has happened to their brain children, be apathetic and fail to recognize the enormity of the deed. But the whole professional body will be affected and should be duly concerned. Serious consequences may be expected if the Profession idly sanctions the growth of unbridled violation of tried ethics.

It must be admitted that design is a combination of art and science. Art is individual and cannot be produced by a department or group except insofar as that body is guided and directed by a mind in which the conception is born. The freer that guiding mind may be the better the results. Therefore it has been repeatedly pointed out of late that since the Government has engaged in so many undertakings, it does well to retain private practitioners skilled in the art. Their work should be treated with respect.

LO! THE POOR ENGINEER

(*Continued from page* 12)

I am puzzled over a recent ruling made by NBC. The ruling concerns the program 'Roses and Drums' and its author, James Glover.

A few weeks ago, the sponsor of 'Roses and Drums' decided the ability of Mr. Glover, as author of the script, rated recognition on the air. So a 'by James Glover' was written into the opening announcement. But NBC refused to permit the author's name to be mentioned on the air. The reason given was that if credit were given to an author, it would open the way to air credits for production men and even Engineers."

ENGINEERING—WHAT NEXT?

Opportunities Expand

From a widely circulated advertisement, the following letter has been culled and is offered as an inspiration to Engineers:

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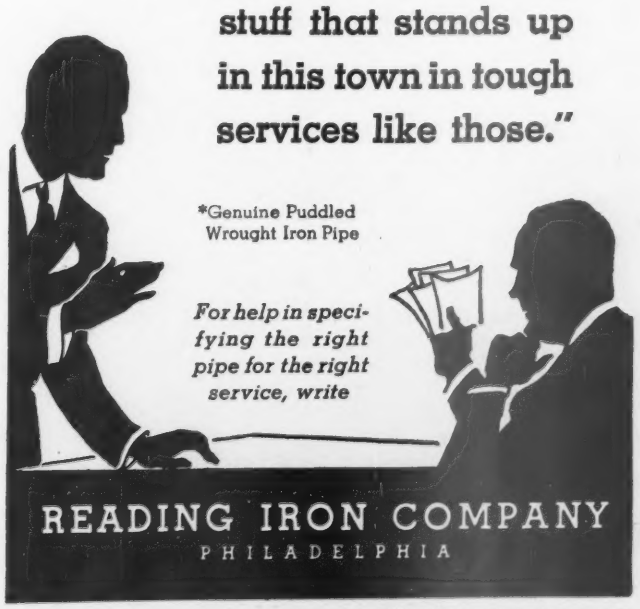

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